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Use of an Evidence Based Verbal Health Literacy Screening Tool in an Inpatient Setting

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Use of an Evidence Based Verbal Health Literacy Screening Tool in an Inpatient Setting

by

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Paper submitted in partial fulfillment of the requirements for the degree of

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Date Finalized

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Date

Date

Date

Date
Acknowledgments

I would like to thank my professors who have supported and helped me develop into a competent, professional, and evidence based APRN. I would not have been able to succeed without their guidance and their continued education on all manners of research. I would also like to especially thank my wife Ashley for her patience and ability to handle things at home while I continued my journey through the DNP program.
Table of Contents

Manuscript Title Page .................................................................................................................. 1
Acknowledgments ......................................................................................................................... 2
Manuscript Abstract ....................................................................................................................... 4
Manuscript ................................................................................................................................... 5
References .................................................................................................................................... 15
Appendix A: EBHLS Tool ............................................................................................................. 17
Appendix B: RNFHLAS Questions ............................................................................................... 18
Appendix C: Work Flow ............................................................................................................... 21
Table 1: RNFHLAS Results ........................................................................................................ 22
Abstract

Patients who are categorized as having low health literacy have been shown to utilize emergency services more frequently, have increased hospitalizations, and have poorer health outcomes, yet very few medical facilities screen for these at risk patients. The purpose of the process change was to evaluate the feasibility of implementing an evidence based verbal health literacy screening tool into the admission process on a progressive care unit at an urban hospital. After an education session on the screening process, nurses were set to administer the Expanded Brief Health Literacy Screening (EBHLS) to patients admitted to the floor. At the end of the pilot, nurses completed a survey that measured the acceptability, use, and satisfaction of the process and tool. Results of the survey showed a positive reception to the implementation with the most common request being to implement the screening tool into the electronic medical record (EMR). Out of the 13 screenings that were completed, seven fell into the low health literacy category (70%) and three were unable to be assessed. This prevalence is alarming even though the sample size was small. Administrative support and implementation of the screening into the EMR are barriers that must be addressed to consistently screen and identify low health literacy patients.

Key words: health literacy; screening; verbal; admission
Use of an Evidence Based Verbal Health Literacy Screening Tool in an Inpatient Setting

Background of the Problem

The Institute of Medicine (2004) 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.” In the United States, 47 million people are categorized as having basic health literacy, while 30 million fall into the low level (Health Literacy Basics, n.d.). People in the basic group are only able to read and understand short and simple verbiage; low health literacy individuals have difficulty understanding anything above simple concrete concepts. Being in either of these categories compromises a patient’s ability to care for themselves appropriately, yet many health care providers are completely unaware of their patient’s literacy difficulties (Evangelista et al., 2010). Not only are providers unaware of a patient’s literacy level, but research shows that often, providers will overestimate an individual’s health literacy skills (Sand-Jecklin, Daniels, & Lucke-Wold, 2016). This can be intimidating for the patient receiving care because individuals are less inclined to ask questions regarding their treatment if they do not understand what is being explained to them (Kripalani et al., 2010).

Studies show that individuals who demonstrate low health literacy are more inclined to use emergency services, have decreased use of preventative health services, have poorer health outcomes particularly with chronic comorbidities, and have increased rates of hospitalizations (Sand-Jecklin et al., 2016). Causes for re-hospitalization are often attributed to poor communication by healthcare providers that address four key areas including medications, discharge instructions, indicators of health decline, and self-care management (Markley et al. 2013). Understanding of these vital areas are impacted by a patient’s health literacy level, yet
many healthcare facilities do not have an established health literacy screening tool in place when these patients are admitted to the hospital.

**Literature Review**

Harrington, Haven, Bailey, & Gerald (2013) demonstrated provider knowledge of a patient’s literacy level before an interaction, increased the occurrence of altered communication that increased patient understanding. Many different screening tools have been developed to assess a patient’s health literacy level. The most widely used are the short Test of Functional Health Literacy for Adults (s-TOFHLA) and the Rapid Estimate of Adult Literacy in Medicine (REALM) (Sand-Jecklin et al., 2016). Both are in written form and take several minutes to complete and score. This can make them impractical for use in a busy inpatient or outpatient setting. Sand-Jecklin et al. (2016) utilized a modified version of a verbal health literacy screening tool developed by Chew, Bradley, & Boyco (2004) and called it the Expanded Brief Health Literacy Screening (EBHLS). The EBHLS is a modified and verbal form of the REALM and s-TOHFLA that was created to assess the feasibility of screening in an inpatient facility. The reasoning that the EBHLS was chosen for this process change was because the instrument had significant correlations with the s-TOHFLA and REALM with success in implementation (Sand-Jecklin & Coyle, 2013).

Sand-Jecklin et al. (2016) implemented the EBHLS on 25,557 of their 31,195 participants (82%). Data were collected for four months at a large Mid-Atlantic teaching hospital. The screening tool was administered to any patient admitted to the hospital regardless of admitting diagnosis. The purpose of their study was to determine the feasibility, acceptability use, and satisfaction of a hospital wide literacy screening tool upon admission to the hospital. Based off the RNFHLAS administered to the staff, nurses found the screening tool to be acceptable and
useful. Cawthon, Mion, Willens, Roumie, & Kripalani (2014) had a sample size of 51,063 from the hospital and 23,186 from the clinic. Implementation of their brief health literacy screen (BHLS) in Cawthon’s study was 92% for the hospital and 66% for the primary clinics. The percentage for the clinic was the lowest out of all the articles reviewed. Both studies failed to report any significant issue in administering a verbal health screening to the patients.

**Theoretical Framework**

The conceptual framework that guided this practice change is the Change Theory of Nursing by Kurt Lewin. In Lewin’s theory, he proposes three stages of unfreezing-change-refreeze that allows healthcare providers to reject and replace prior learning and processes. There are three major concepts in this theory that impact these vital stages and their success, which include driving forces, restraining forces, and equilibrium. Driving forces are factors that facilitate change, restraining forces hinder change, and equilibrium is a state where driving and restraining forces are equal. Before a successful practice change can take place, driving and restraining forces must be analyzed. Equilibrium can be altered and monitored based off the changes that are found between driving and restraining forces throughout the practice change.

**Setting and Organizational Assessment**

The setting for this project was an inpatient teaching hospital with 404 inpatient beds which offers a wide range of services including a burn unit, cancer center, and a nationally accredited stroke center. It is the only level one Trauma Center in the region, and will on average, have over 15,000 admissions per year. Last year, 48% of admissions were male and 52% were female with 75% being Caucasian. Thirty percent of admissions were also 60 years or older. This process change was piloted on a progressive care unit (PCU) for non-surgical step-down patients of various acuities. The unit provides 24 hour services and receives transfers from
both higher and lower levels of care, and is a true representation of a high census urban inpatient facility with a diverse population. This floor was also selected because healthcare providers are consistently engaged during their shift and the PCU experiences a high volume of patients.

An unexpected contextual element occurred immediately prior to implementation when several veteran nurses left the unit. Consequently, at the time of implementation approximately one-third of the nursing staff was new to the floor. Most of the experienced staff remaining on the floor were orienting new nurses. This shift in workforce made it difficult for both the new and experienced nurses to adhere to a process change. Another contextual barrier also occurred due to depleted work force. Due to low levels of permanent staff nurses, many who worked the floor were floats and were excluded from implementing the process change. These barriers plus finding time for education on the verbal screening tool when it didn’t take staff nurses away from patient care made for a challenging implementation.

A letter of support was provided by the University of Louisville Hospital Office of Professional Practice Nursing Education, Research, and Quality Department (OPPNERQ). The acting Nurse Manager of the floor provided support and assistance with the program. Kari Sand-Jecklin and associates gave permission for utilization of both the EBHLS and nurse survey instruments.

**Purpose**

The purpose of this program was to establish feasibility of a workflow process change to screen for health literacy level in adult patients. This process change has three specific aims and includes: Test the feasibility of the EBHLS in clinical practice, increase nursing assessment of health literacy through education and the use of the EBHLS, and measure the acceptability of the EBHLS using the RNFHLAS. The reasoning for these aims is that if patients with low health
literacy are identified, then healthcare providers will be able to alter their communication in a way that the individual can understand. This, in turn, would improve patient’s quality of life and ability to manage their care.

**Intervention**

To inform the staff on the PCU about the process change, the program leader provided a 15-minute education session about the EBHLS to the nurses prior to the morning shift. This allowed for night shift to be educated as well prior to them going home. A packet of information was distributed to each nurse and the program leader reviewed the enclosed information. Guidance on how to administer the instrument, how to interpret the score, and what to do after screening completion was provided to all staff in attendance (See Appendix C). Attendees had the opportunity to ask questions. To facilitate change, nurse champions were selected and included in this project. One nurse from both day-shift and night-shift were selected to ensure 24-hour coverage. These champions were chosen by the PCU nurse manager after they expressed interest in assisting with this project. The main roles of the nurse champions were to disseminate information on the EBHLS, mentor the staff nurses on administration of the screening tool, be persuasive practice leaders, and inform the program leader of any concerns during the implementation.

After receiving an education session about health literacy, nurses on the PCU piloted the new workflow, which included an assessment of patient health literacy using the EBHLS, a 5-item verbal screening tool. The EBHLS should have been administered during the admission process to the floor, but completion before patient discharge was considered a successful screening. The screening tool was filled out on paper by the nurse and was not input into the EMR due to the pilot nature of the process change. If the nurse attempted to complete the form
and the patient was unable or unwilling to respond the nurse checked the corresponding box on the EBHLS. All EBHLS screenings were placed in a closed collection box at the nurse’s station. There was no identifying patient information on the EBHLS. If a patient fell into the low health literacy category, a pink heart was placed outside the patient’s room to properly identify them. When a low health literacy patient was identified, nurses were encouraged to utilize communication strategies to improve discussion and understanding. Transfers were not included in the screening process because it was assumed they would have been administered the EBHLS on their original floor.

**Participants**

The sample size for this project was 10 nurses who met inclusion criteria. The inclusion criteria for this project was any nurse who works at least one shift on the PCU during the two-week pilot period. This included part time, PRN, and full-time nurses. Nurses who were in the float pool and orientees were excluded in this process change. Recent turnover led to a decrease in expected participants. Consent was not necessary for this implementation because it was considered quality improvement.

**Data Collection**

Both the completed screenings and surveys were placed in closed collection box at the nurse’s station upon completion. Descriptive analysis of RN Feasibility Health Literacy Assessment Scale (RNFHLAS) and EBHLS including mean score, standard deviation, and frequency were calculated on both instruments. Because this was a workflow process change, there was minimal risk involved for both patients and nurses. Testing the feasibility of implementing a screening tool did not cross any ethical, cultural, or physical boundaries. Patient
identifiers were not used in this evaluation so there was no anticipated risk of patient health information being leaked or misplaced.

**Measurement**

The EBHLS has five questions with a 5-point Likert scale and a Cronbach alpha score of .79. A score of less than 19 (out of 25) is indicative of low health literacy, and a score of 3 or less on any of the questions identifies an area of attention/assistance. A descriptive analysis was performed on the results of the screening.

The RNFHLAS measures the acceptability, use, and satisfaction of the EBHLS from the nursing perspective. Scale reliability was conducted by Sand-Jecklin, Daniels and Lucke-Wold in 2016 and yielded a Cronbach alpha score of .89. This survey has 10 questions and uses the Likert-type agreement scale with three negatively worded items.

Aggregate demographic data was collected by the nurse manager for the two-week trial period and included the total number of admissions to the floor. The completion rate of the EBHLS was calculated by dividing the total number of screening completions by the overall number of admissions during the two-week pilot period. Demographic data regarding the nurse participants collected included: age, years of experience as a nurse, and degree held. An additional open-ended comment section was analyzed for themes.

These two instruments were chosen because previous testing at a large mid Atlantic hospital by Sand-Jecklin, Daniels and Lucke-Wold (2016) yielded successful implementation facility wide with positive feedback from the nurses. The high validity of the tools and high completion rate of screenings provided an evidence-based standpoint for piloting this process change in a new environment.

**Results**
The RNFHLAS was completed by five out of 10 (50%) nurses. Overall, the staff that filled out the survey had a positive reception to the new screening process and found it to be acceptable, useful, and satisfactory. The mean score of the 10-item survey was 39.4 out of 50 (See Table 1). A score over 36 was considered a positive reception. Comments of the nurses indicated that implementation would have gone smoother if the screening was implemented into the electronic medical record (n=3). Another comment was that the “unable to assess” needs different wording to make it clearer (n=1). Demographics of the nurses did not seem to play a part in survey results due to the overall high scores given for the various questions. The pink heart placement was mainly neutral when it came to the opinion of the nurses, but it was noticed by providers prior to entering the room. Nurses reported that this identification tool was effective in facilitating discussion and identifying patients with a low health literacy level.

For the EBHLS, 13 out of 87 patients were screened for a representation of 15%. This number, however, is misleading since those 87 patients included transfers who were not included in the screening process. The nurse manager was unable to differentiate between transfers and new admissions when providing the admission data. Out of the 13 patients, three were marked unable to assess, which means that 7 out of 10 fell into the low health literacy category (70%). The median score for this screening was 18, while the mean was 14.6. Comments by patients indicated that the use of simpler words would help them understand health information better (n=2) while one patient commented that they were unsure what would help.

**Discussion**

The RN survey showed an overall positive reception to the screening tool and questions, which leads this program leader to believe that it can be replicated in the future. The workflow process change was also successful in identifying 70% of patients who fell into the low health
literacy category. This high rate was unexpected because literature review yielded a typical low health literacy rate of around 40-50% in the population studied. Nurses also reported that the utilization of the EBHLS was acceptable, useful, and satisfactory as a tool to be integrated into the admission process. Acknowledging low health literacy patients via the pink heart identification system was also successful because communication between the nurses and providers occurred when the sign was placed outside the patient’s room. It is this program leaders hope that as providers learn more about low health literacy and its consequences, they begin to alter their communication in a way that patients can understand. These findings are going to be disseminated to key leaders at the hospital to stimulate discussion regarding consistent screening for low health literacy patients.

The most significant incidental finding was the number of unintended barriers that arose through project implementation. Barriers such as not accounting for high amounts of transfer patients, recent nursing turnover, high number of orientees, increased workload, and burn out led to a decrease in compliance. These barriers, which are often present in inpatient health care facilities are important to note. Nurse champions helped alleviate some of the barriers because they facilitated change with their positive attitude, answered questions about health literacy and the process change, and served as a liaison to the student investigator.

If certain barriers are mitigated, and the EBHLS is uploaded into the electronic medical record, then it would allow for a smoother transition as suggested by the nurses in the comments section. The nurse champion did report that patients were very receptive to the screening and were appreciative that the nurses were wanting to know ways they could help make their care more personalized. If hospital wide implementation were to occur, multiple education pieces and involvement of key leaders would be a necessity. Due to the low level of responses and
screenings, the incorporation of the EBHLS into the admission process needs to be further examined.

Limitations

This project has many limitations to consider. First, the implementation was in a single setting with a small sample size so it may not be representative of all inpatient settings. Second, unexpected barriers that were not addressed during the initial proposal led to a poor environment in which to implement the new screening process. Lastly, the survey data and the screening responses were self-reported so there may be some variability of understanding questions and the way they were asked.

Conclusion

Even with the small sample size and response, this project was useful in showing that health literacy screening is still plausible. Sustainability will be easier to maintain when barriers are mitigated, more education is provided, and the nurses and leadership buy into change. Future attempts at implementing HL screening should focus on mitigating said barriers and assessing the integration of the tool into the electronic medical record. The EBHLS used in this study has the potential to make a drastic impact in health literacy screening while also fulfilling the AHRQs national action plan regarding addressing it as a problem. A one-time screening, attached to their permanent medical file, would inform the patient’s healthcare team of their health literacy needs. This one fact has the potential to drastically alter a patient’s healthcare experience in a positive way. Continuing to research strategies and providing education to healthcare providers will allow for sustained discussion on the recognition of low health literacy as a problem. When patients are appropriately assessed, healthcare providers can implement interventions to better communicate and care for low health literacy patients. Ultimately, the
reasoning for this screening is to improve the overall quality of life for the patients, and for individuals to have a more active role in their healthcare decisions.
References


Appendix A

EBHLS Tool

<table>
<thead>
<tr>
<th>Question</th>
<th>Health Literacy score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If you need to go to the doctor, clinic or hospital, how confident are you in filling out the medical forms by yourself?</td>
<td></td>
</tr>
<tr>
<td>______ not at all confident (1) ______ a little confident (2)</td>
<td></td>
</tr>
<tr>
<td>______ somewhat confident (3) ______ quite confident (4)</td>
<td></td>
</tr>
<tr>
<td>______ extremely confident (5)</td>
<td></td>
</tr>
</tbody>
</table>

| 2. How often do you have someone (family member or staff at the clinic or hospital) help you to read health or medical forms? |                       |
| ______ always (1) ______ often (2) ______ sometimes (3)                 |                       |
| ______ occasionally (4) ______ never (5)                               |                       |

| 3. How often do you have problems learning about your health because of trouble understanding written health information? |                       |
| ______ always (1) ______ often (2) ______ sometimes (3)                |                       |
| ______ occasionally (4) ______ never (5)                               |                       |

| 4. How often do you have trouble understanding what your doctor, nurse, or pharmacist (druggist) tells you about your health or about treatments? |                       |
| ______ always (1) ______ often (2) ______ sometimes (3)                |                       |
| ______ occasionally (4) ______ never (5)                               |                       |

| 5. How often do you have trouble remembering instructions from the doctor, nurse or pharmacist (druggist) after you get home? |                       |
| ______ always (1) ______ often (2) ______ sometimes (3)                |                       |
| ______ occasionally (4) ______ never (5)                               |                       |

6. Unable to assess

Score < 19 indicates probable limitation in patient health literacy

Score of 3 or < on an individual item indicates an area of attention/assistance needed to assure patient ability to understand health information/materials

Total Score______

What would help you best understand and remember the information you are getting about your health?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
## Appendix B

### RN Feasibility Health Literacy Assessment Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Neither Disagree or Agree</th>
<th>4 Agree</th>
<th>5 Strongly Agree</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Completing the admission patient health literacy assessment is easy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I see no benefit in assessing patient health literacy for clinic visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The length of the admission health literacy assessment is appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I found the health literacy assessment too difficult</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I am satisfied with this way to assess patient health literacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. This health literacy assessment takes too much time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The information gained from the health literacy assessment is helpful for patient care and teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I would like to continue assessing patient health literacy this way</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The physicians are receptive to the health literacy assessment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The pink heart is helpful in identifying patients with low HL literacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you have any other comments about patient admission health literacy assessment?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Demographic Information

Department: _________
Age:  _____ 21 and Under  _____ 22 to 34  _____ 35 to 44  _____ 45 to 54  _____ 55 to 64  _____ 65 and Over
2. Years of experience in clinical setting: ________
4. Current degree held:  _____ LPN  _____ ADN  _____ Diploma  _____ BSN  _____ Master’s Degree or higher  _____ MA  _____ Other

Thank You!
Other information:

- EBHLS is in paper form and will not be recorded in the patient’s chart.
- Do not place any patient identifiers on the EBHLS (names, DOB, diagnosis, etc).
- Patients can refuse to answer. Just mark “unable to assess” and it will still be counted as a successful screening.
- The nurse champion will be able to answer any questions about the implementation or assist if problems arise.
- If you completed the EBHLS assessment on a patient, make sure to let the oncoming nurse know so a repeat screen is not done.
- Use the tip sheet provided to help with low HL patients!
- The feasibility scale at the end of the trial period will measure the acceptability, use, and satisfaction of the EBHLS. There will also be a section for you to post comments. These will be anonymous. The scale will be available at the nurse’s station and will also be placed in a bin after completion.
## Table 1

RN Feasibility Health Literacy Assessment Scale

<table>
<thead>
<tr>
<th>Question</th>
<th>M</th>
<th>Agree or Strongly Agree n (%)</th>
<th>Disagree or Strongly Disagree n (%)</th>
<th>Neither agree or Disagree n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completing HL Assessment is Easy</td>
<td>4.4</td>
<td>5 (100)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>I see no benefit in assessing HL on patient admission</td>
<td>1.4</td>
<td>0(0)</td>
<td>5(100)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Length of HL Assessment is appropriate</td>
<td>3.4</td>
<td>3(60)</td>
<td>0(0)</td>
<td>2(40)</td>
</tr>
<tr>
<td>I found HL assessment to difficult</td>
<td>1.6</td>
<td>0(0)</td>
<td>5(100)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Satisfied with the way to assess patient HL</td>
<td>4</td>
<td>5(100)</td>
<td>0(0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>HL assessment takes to much time</td>
<td>1.6</td>
<td>0(0)</td>
<td>5(100)</td>
<td>0(0)</td>
</tr>
<tr>
<td>Info gained from HL assessment is helpful for patient care</td>
<td>4</td>
<td>4(80)</td>
<td>0(0)</td>
<td>1(20)</td>
</tr>
<tr>
<td>I would like to continue assessing HL this way</td>
<td>3.4</td>
<td>3(60)</td>
<td>1(20)</td>
<td>1(20)</td>
</tr>
<tr>
<td>Physicians are receptive to HL assessment</td>
<td>3.2</td>
<td>2(40)</td>
<td>2(40)</td>
<td>1(20)</td>
</tr>
<tr>
<td>Pink heart is helpful in identifying patients with low HL</td>
<td>3.4</td>
<td>2(40)</td>
<td>0(0)</td>
<td>3(60)</td>
</tr>
</tbody>
</table>