

Health Literacy Studies and Research

In This Folder

National Action Plan to Improve Health Literacy Summary.

US Department of Health and Human Services (DHHS). 2010 May.

- This US DHHS report contains seven goals that will improve health literacy and suggests strategies for achieving them.

Enhancing Student Knowledge About the Prevalence and Consequences of Low Health Literacy.

Brigitte L. Sicat, PharmD, Lilian H. Hill, PhD. School of Pharmacy, Virginia Commonwealth University. Department of Education Leadership and Research, The University of Southern Mississippi School of Pharmacy, Virginia Commonwealth University.

- Provides an educational approach for use with students in advanced practice experiential (APE) programs and with practicing pharmacists so that they can better assist patients with low health literacy.

Patient Perspective of Medication Information Desired and Barriers to Asking Pharmacists Questions.

Janelle L. Krueger MS, BSPHarm, Carol J. Hermansen-Kobulnicky PhD, BSPHarm. J Am Pharm Assoc. 2011;51(4):510-519.

- This recent article supports revisiting current pharmacy practice and practice laws about refill counseling and risk information provision, with greater potential implications for less educated individuals.
- It also points out that information desired by patients when receiving new prescriptions include adverse effects, basic instructions, and drug interactions.

Limited Health Literacy: The Impact on Adherence.

Desiree Lie, MD. Medscape Family Medicine-Cases in Health Disparity. 2011 March.

- Written by an expert in the field of health literacy, this document reviews 3 patient cases, and addresses the gaps in communication with their health care providers.

Health Literacy and Outcomes Among Patients With Heart Failure.

Pamela Peterson, MD, MSPH, Susan Shetterly, MS, Christina Clarke, BS, et al. JAMA. 2011 Apr 27;305(16):1695-1701.

- Low health literacy is significantly associated with higher all-cause mortality among patients with heart failure.

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health literacy • the degree to which individuals can obtain, process, and understand basic health information and services needed to make appropriate health decisions (Institute of Medicine)

Relevant Abstracts

Nancy D. Berkman, PhD, Stacey L. Sheridan, MD, MPH, et al. "**Low Health Literacy and Health Outcomes: An Updated Systematic Review**". *Ann Intern Medicine*. July 19, 2011 vol. 155 no 2 97-107.

BACKGROUND: Approximately 80 million Americans have limited health literacy, which puts them at greater risk for poorer access to care and poorer health outcomes.

OBJECTIVE: To update a 2004 systematic review and determine whether low health literacy is related to poorer use of health care, outcomes, costs, and disparities in health outcomes among persons of all ages.

METHODS: English-language articles were identified through MEDLINE, CINAHL, PsycINFO, ERIC, and Cochrane Library databases and hand-searching (search dates for articles on health literacy, 2003 to 22 February 2011; for articles on numeracy, 1966 to 22 February 2011). Two reviewers independently selected studies that compared outcomes by differences in directly measured health literacy or numeracy levels. One reviewer abstracted article information into evidence tables; a second reviewer checked information for accuracy. Two reviewers independently rated study quality by using predefined criteria, and the investigative team jointly graded the overall strength of evidence.

RESULTS: 96 relevant good- or fair-quality studies in 111 articles were identified: 98 articles on health literacy, 22 on numeracy, and 9 on both. Low health literacy was consistently associated with more hospitalizations; greater use of emergency care; lower receipt of mammography screening and influenza vaccine; poorer ability to demonstrate taking medications appropriately; poorer ability to interpret labels and health messages; and, among elderly persons, poorer overall health status and higher mortality rates. Poor health literacy partially explains racial disparities in some outcomes. Reviewers could not reach firm conclusions about the relationship between numeracy and health outcomes because of few studies or inconsistent results among studies.

DISCUSSION: Searches were limited to articles published in English. No Medical Subject Heading terms exist for identifying relevant studies. No evidence concerning oral health literacy (speaking and listening skills) and outcomes was found.

CONCLUSION: Low health literacy is associated with poorer health outcomes and poorer use of health care services.

Pamela N. Peterson, MD, Susan M. Shetterly, MS, et al. "**Health Literacy and Outcomes among patients with Heart Failure.**" *JAMA*. 2011;305(16):1695-1701.

BACKGROUND: Little is known about the effects of low health literacy among patients with heart failure, a condition that requires self-management and frequent interactions with the health care system.

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OBJECTIVE: To evaluate the association between low health literacy and all-cause mortality and hospitalization among outpatients with heart failure.

METHODS: Retrospective cohort study conducted at Kaiser Permanente Colorado, an integrated managed care organization. Outpatients with heart failure were identified between January 2001 and May 2008, were surveyed by mail, and underwent follow-up for a median of 1.2 years. Health literacy was assessed using 3 established screening questions and categorized as adequate or low. Responders were excluded if they did not complete at least 1 health literacy question or if they did not have at least 1 year of enrollment prior to the survey date. Main outcome measures were all-cause mortality and all-cause hospitalization.

RESULTS: Of the 2156 patients surveyed, 1547 responded (72% response rate). Of 1494 included responders, 262 (17.5%) had low health literacy. Patients with low health literacy were older, of lower socioeconomic status, less likely to have at least a high school education, and had higher rates of coexisting illnesses. In multivariable Cox regression, low health literacy was independently associated with higher mortality (unadjusted rate, 17.6% vs 6.3%; adjusted hazard ratio, 1.97 [95% confidence interval, 1.3-2.97]; $P = .001$) but not hospitalization (unadjusted rate, 30.5% vs. 23.2%; adjusted hazard ratio, 1.05 [95% confidence interval, 0.8-1.37]; $P = .73$).

CONCLUSIONS: Among patients with heart failure in an integrated managed care organization, low health literacy was significantly associated with higher all-cause mortality.

H. Shonna Yin, MD, Michael S. Wolf, PhD, MPH, MA, et al. "Evaluation of Consistency in Dosing Directions and Measuring Devices for Pediatric Nonprescription Liquid Medications." JAMA. 2010;304(23):2595-2602.

BACKGROUND: In response to reports of unintentional drug overdoses among children given over-the-counter (OTC) liquid medications, in November 2009 the US Food and Drug Administration (FDA) released new voluntary industry guidelines that recommend greater consistency and clarity in OTC medication dosing directions and their accompanying measuring devices.

OBJECTIVE: To determine the prevalence of inconsistent dosing directions and measuring devices among popular pediatric OTC medications at the time the FDA's guidance was released.

METHODS: Descriptive study of 200 top-selling pediatric oral liquid OTC medications during the 52 weeks ending October 30, 2009. Sample represents 99% of the US market of analgesic, cough/cold, allergy, and gastrointestinal OTC oral liquid products with dosing information for children younger than 12 years. Inclusion of measuring device, within-product inconsistency between dosing directions on the bottle's label and dose markings on enclosed measuring device, across-product use of nonstandard units and abbreviations, and presence of abbreviation definitions.

RESULTS: Measuring devices were packaged with 148 of 200 products (74.0%). Within this subset of 148 products, inconsistencies between the medication's dosing directions and markings on the device were found in 146 cases (98.6%). These included missing markings ($n = 36$, 24.3%) and superfluous markings ($n = 120$, 81.1%). Across all products, 11 (5.5%) used atypical units of measurement (eg, drams, cc) for doses listed. Milliliter, teaspoon, and tablespoon units were used for doses in 143 (71.5%), 155 (77.5%), and 37 (18.5%) products, respectively. A nonstandard abbreviation for milliliter (not mL) was used by 97 products. Of the products that included an abbreviation, 163 did not define at least 1 abbreviation.

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CONCLUSIONS: At the time the FDA released its new guidance, top-selling pediatric OTC liquid medications contained highly variable and inconsistent dosing directions and measuring devices.

Devraj R., Gupchup GV. **"Identifying aspects of pharmacists' attitudes and barriers toward health literacy: a factor analytic study."** Annals of Pharmacotherapy. 45(6):771-9, 2011 Jun.

BACKGROUND: Health literacy has gained prominence since the Institute of Medicine Report publicized the widespread prevalence of low health literacy. Pharmacists play an important role in enhancing health literacy as a result of their proximity to patients. Literature about pharmacists' perceptions and barriers in incorporating health literacy interventions is lacking.

OBJECTIVE: To develop an instrument to measure pharmacists' attitudes and barriers toward health literacy.

METHODS: A survey instrument assessing attitudes and barriers was designed based on a pharmacist focus group. The instrument was pretested among a sample of pharmacists from Illinois. The final instrument was administered to a systematic sample of 1500 pharmacists who were members of the Illinois Pharmacists Association. Dillman's 5-step total design method was followed to maximize survey responses. Exploratory principal components analysis with varimax rotation was performed on attitudes and barriers items to identify underlying components. Internal consistency of the components was determined using the Cronbach alpha and corrected item-total correlations.

RESULTS: Overall, usable responses were received from 701 respondents, yielding a 48.1% response rate. Exploratory principal components analysis of the attitudes subscale produced a 5-factor solution that explained 55.87% of the variance. The 5 components included (1) low health literacy (LHL) situations, (2) LHL reasons, (3) LHL patient characteristics, (4) medication-related factors, and (5) LHL patient-interaction factors. The barriers subscale produced 3 components: (1) practice-related barriers, (2) knowledge and interaction-related barriers, and (3) process barriers, all of which explained 53.74% of the variance. Cronbach alpha values for the 5 attitudes subscales ranged from 0.33 to 0.78 and, for the 3 barriers, subscale values ranged from 0.56 to 0.71, offering evidence of internal consistency.

CONCLUSIONS: Identification of components of pharmacists' attitudes and barriers toward health literacy will be useful to managers interested in incorporating health literacy interventions in their practice

**For more information regarding health literacy,
obtaining health literacy tools to use in practice,
or to participate in initiatives, please contact:**

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