

## EDITORIAL

# While You're Waiting, Let Me Introduce You to Our Computer

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Problem drinking is a major cause of morbidity and mortality.<sup>1</sup> Although light drinking (as little as two drinks per week) is associated with a 12% reduction in the risk of myocardial infarction,<sup>2</sup> other health risks increase, even with light to moderate drinking. The risk of breast cancer, for example, increases 11% per drink per day.<sup>3</sup> Alcohol is a major factor in trauma, is associated with one third to one half of intended and unintended injury deaths,<sup>4-6</sup> and is estimated to cause more than 100,000 deaths each year in the United States.<sup>7,8</sup>

Hazardous and harmful drinking are common problems in primary care. Using *Diagnostic and Statistical Manual of Mental Disorders, ed 4* (DSM-IV) criteria, 7.4% of US adults had current (ie, past-year) alcohol abuse or dependence in 1992.<sup>9</sup> The 1999 Behavioral Risk Factor Surveillance Survey (BRFSS) found that 15.8% of US adults reported one or more occasions of drinking 5 or more drinks in the past month, one common definition of hazardous drinking.<sup>10</sup> Problem drinking is about as common as hypertension. The 1999 BRFSS found that 18.3% of US adults reported having been told more than once they had high blood pressure. Hazardous and harmful drinking are less common among older persons. Only 0.64% met DSM-IV criteria for alcohol abuse or dependence<sup>9</sup> and 3.9% reported one or more occasions of drinking 5 or more drinks in the past month.<sup>10</sup>

In contrast to these relatively low prevalence rates for older persons, Nguyen and her colleagues<sup>11</sup> report in this issue a prevalence of hazardous and harmful drinking of 44% and 9%, re-

spectively. The higher prevalence rates are due in part to their including only current drinkers in the denominator, but their definitions are also considerably wider than those in previous studies. Their definition of hazardous drinking, for example, included drinking less than 1 drink per day in a context of potentially alcohol-related biomedical disease, and harmful drinking included more than alcohol abuse or dependence.

Why did Nguyen et al set the threshold for problem drinking so low? First, other than the possible cardiac benefits of light drinking, there appears to be no threshold of drinking below which there is no risk of harm. Even light drinking appears to increase the risk of injury, for example.<sup>12,13</sup> Second, because of biologic and psychosocial changes that accompany aging, smaller amounts of alcohol can impose greater risk on older adults than on younger ones.<sup>14</sup> Amounts of alcohol below safe-drinking thresholds set for young and middle-aged adults (less than 4 per occasion for a woman, less than 5 for a man<sup>15</sup>) might still be risky for older adults. Third, the most notable reason was simply that the screening and much of the intervention were being done by a computer.

The agenda in a primary care visit is crowded with acute and chronic problems that need attention and time.<sup>16</sup> Furthermore, the US Preventive Services Task Force recommends 28 preventive health services for elderly patients, many of which are not routine.<sup>17</sup> Problem drinking is only one of those 28 services, and spending time discussing it with patients whose consumption is infrequent and low can take time away from other equally needed services. Physicians are seemingly faced with either missing substantial numbers of lower risk hazardous drinkers—and along with them, other patients with more serious alcohol problems—or neglecting other important areas of clinical care.

Nguyen and her colleagues show us a different way. By using a computer to assess the pattern and

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consequences of alcohol use, they removed screening for problem drinking from the crowded physician-patient encounter. Furthermore, by having the computer provide educational feedback to the patient, they helped put discussion about alcohol on the patient's agenda for the visit. Alcohol-related discussions could become more common and more comfortable by bringing to the physician's attention those patients who are ready to change and doing it in a patient-centered way.<sup>18</sup>

A computer-based approach makes it feasible to screen all patients using very low thresholds for defining problem drinking. It takes little of the patient's time, time often spent waiting anyway. It takes little of the clinician's time, and then only if the program motivates the patient to bring up the subject of drinking. A computer can present information in a clear and consistently nonjudgmental way, avoiding stigmatizing the patient or arousing defensiveness.

Computer-based screening is generally acceptable to patients, although most studies have looked at adolescents<sup>19</sup> or middle-aged adults.<sup>20</sup> These studies compared computer-based interviewing with face-to-face or paper-based questionnaires and found higher rates of reporting problem drinking with the computer. Although the interviewer with whom the computer was compared was a stranger to the research subject, and presumably patients would be more candid with a familiar primary care clinician, computer-based approaches do appear to be acceptable to patients and reasonably accurate. Nguyen and her colleagues have shown this finding to be true for older adults as well.

The future role of computers in preventive health service delivery is not entirely unclouded. To increase provision of cancer-detection services in practice, Williams and his colleagues<sup>21</sup> put a computer kiosk in family physicians' office waiting rooms, where patients interacted with it independently. Patients entered data on the computer's touch-screen about past services, and the computer printed a list of needed services for the physician to address with the patient. Of the seven services examined, only two (clinical breast examination and mammography) showed significant differences. The difference in change was about 8% more (absolute difference) in the intervention practices than in the control ones. Other preventive health services were not examined.

A computer system like that used by Nguyen and colleagues is not yet ready for use in practice, but they have shown that such a system is acceptable to patients. The door is now open for the creative development of new computer programs. Further research is needed to compare computer-based with physician-based interventions, which we know are effective in helping about 20% of problem drinkers reduce consumption to safe levels.<sup>22-24</sup> Even if less effective, a computer-based approach could be preferable if it were used more routinely and by more physicians, because of more efficient use of the clinician's time, for example. Even that plausible assumption needs validation, however, because a computer system could take more of the clinician's time if it prompts many nonproblem drinkers to raise the issue. Most importantly, further research is needed to determine which approach is more engaging for problem drinkers, which approach helps them move further toward change.

The hardware and space required are too expensive to spend on a system that addresses only one of the many preventive health services patients should receive. It could more than pay for itself, however, if it could screen for, assess, and intervene with a whole list of potential issues, letting patients pick the one(s) they want to work on first. If linked with other paper- and Web-based resources, a more comprehensive system could greatly enhance preventive-health-service delivery and help patients address health risk behaviors. The day may come when, instead of reading an old magazine while waiting for the physician, patients may be told, "While you're waiting, let me introduce you to our computer."

## References

1. Measuring the health risks and benefits of alcohol. 10th special report to the U.S. Congress on alcohol and health. Washington, DC: National Institute on Alcohol Abuse and Alcoholism, Department of Health and Human Services, 2000:3-27.
2. Maclure M. Demonstration of deductive meta-analysis: ethanol intake and risk of myocardial infarction. *Epidemiol Rev* 1993;15:328-51.
3. Longnecker MP. Alcoholic beverage consumption in relation to risk of breast cancer: meta-analysis and review. *Cancer Causes Control* 1994;5:73-82.
4. Smith GS, Branans CC, Miller TR. Fatal nontraffic injuries involving alcohol: a meta-analysis. *Ann Emerg Med* 1999;33:659-68.

5. Alcohol involvement in fatal motor-vehicle crashes – United States, 1997–1998. *MMWR Morb Mortal Wkly Rep* 1999;48:1086–7.
6. Hingson R, Howland J. Alcohol and non-traffic unintended injuries. *Addiction* 1993;88:877–83.
7. Shultz JM, Rice DP, Parker DL. Alcohol-related mortality and years of potential life lost—United States, 1987. *MMWR Morb Mortal Wkly Rep* 1990;39:173–8.
8. McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA* 1993;270:2207–12.
9. Grant BF, Harford TC, Dawson DA, Chou P, Dufour M, Pickering R. Prevalence of DSM-IV alcohol abuse and dependence: United States, 1992. *Alcohol Health Res World* 1994;18:243–8.
10. Behavioral risk factor surveillance system online prevalence data, 1995–1998. Division of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. 2000. Available at <http://www2.cdc.gov/nccdphp/brfss/index.asp>.
11. Nguyen K, Fink A, Beck JC, Higa J. Feasibility of using an alcohol screening and health education system with older primary care patients. *J Am Board Fam Pract* 2001;14:7–15.
12. Cherpitel CJ, Tam T, Midanik L, Caetano R, Greenfield T. Alcohol and non-fatal injury in the U.S. general population: a risk function analysis. *Accid Anal Prev* 1995;27:651–61.
13. Vinson DC, Mabe N, Leonard LL, et al. Alcohol and injury. A case-crossover study. *Arch Fam Med* 1995;4:505–11.
14. Alcohol involvement over the life course. 10th special report to the U.S. Congress on alcohol and health. Washington, DC: National Institute on Alcohol Abuse and Alcoholism, Department of Health and Human Services, 2000:28–53.
15. National Institute on Alcohol Abuse and Alcoholism. The physician's guide to helping patients with alcohol problems. Bethesda, Md: National Institutes of Health, 1995. Available at <http://silk.nih.gov/silk/niaaa1/publication/physicn.htm>.
16. Stange KC, Zyzanski SJ, Jaén CR, et al. Illuminating the 'black box'. A description of 4454 patient visits to 138 family physicians. *J Fam Pract* 1998;46:377–89.
17. Guide to clinical preventive services: report of the U.S. Preventive Services Task Force. 2nd ed. Philadelphia: Lippincott-Williams & Wilkins; 1996.
18. Rush BR, Powell LY, Crowe TG, Ellis K. Early intervention for alcohol use: family physicians' motivations and perceived barriers. *CMAJ* 1995;152:863–9.
19. Paperny DM, Aono JY, Lehman RM, Hammar SL, Risser J. Computer-assisted detection and intervention in adolescent high-risk health behaviors. *J Pediatr* 1990;116:456–62.
20. Gerbert B, Bronstone A, Pantilat S, McPhee S, Allerton M, Moe J. When asked, patients tell: disclosure of sensitive health-risk behaviors. *Med Care* 1999;37:104–11.
21. Williams RB, Boles M, Johnson RE. A patient-initiated system for preventive health care. A randomized trial in community-based primary care practices. *Arch Fam Med* 1998;7:338–45.
22. Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. *JAMA* 1997;277:1039–45.
23. Fleming MF, Manwell LB, Barry KL, Adams W, Stauffacher EA. Brief physician advice for alcohol problems in older adults: a randomized community-based trial. *J Fam Pract* 1999;48:378–84.
24. Wilk AI, Jensen NM, Havighurst TC. Meta-analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers. *J Gen Intern Med* 1997;12:274–83.