

C. MESSIER, D.I. MILLER, M. GAGNON, V. TALBOT. *I hate Emily: Why interactive voice response systems are unfriendly with older people and how to fix it. Gerontechnology 2010;9(2):231; doi:10.4017/gt.2010.09.02.221.00* **Purpose** Interactive voice response (IVR) systems use computer-based voice recognition and software algorithms to allow human/computer interactions. In the context of health care, IVR systems have the potential to improve efficiency and maximize the use of health care resources¹⁻⁵. However, in general, older people hate to interact with IVR systems⁶. This is particularly problematic as an increasing number of services are provided with these systems. The dislike older people have is associated with their difficulties using these systems, compared to younger people⁷. Many of the difficulties that seniors experience when interacting with IVR systems appear to be due to the cognitive changes associated with aging (e.g. less efficient working memory, slower information processing and different attention processes)⁷. In this presentation, we will briefly describe the technical advances in the recognition engines available. We will also present the various possible interactive voice responses systems (guided IVR, assisted IVR). In guided IVR, a real person monitors many IVR interactions at the same time and intervenes to 'help' the IVR system by interpreting parts of the human conversation for the computer if there is a miscommunication. In assisted IVR, while most of the conversation is recorded and automatically interpreted by the computer, a real person scores some problematic interactions after the fact. Finally, we describe strategies to adapt IVR systems and "conversations" to specific subgroups so that the IVR conversation is closer to what is expected by the user. IVR systems can be adapted to people's physical limitations, cognitive abilities and social background. These strategies can include an 'on-the-fly' evaluation of people's abilities, using requests from the user to adjust some parameters and formal short tests to evaluate cognitive abilities. In older people, some of the important factors are speed of speech, choice of words and expressions, number of choices, and quantity of information in each step. On the other hand, computerized systems have to be able to decipher the less focused and richer responses that older people typically enjoy giving, a reflection of cognitive style rather than a limitation. In health services, two main applications are currently used. The first one is a delivery system for health information. The second, a more recent advance, functions as a triage agent. People are evaluated for their need of immediate medical attention and calls can be switched to attending health practitioners. Systems can also be designed to forward the information gathered by the IVR system to the person's physician and/or medical team using web interfaces or e-mail. In summary, rapid progress is being made in the refinement of IVR protocols to allow them to adapt to people rather than the reverse.

References

1. Forster AJ, Walraven C van. Using an interactive voice response system to improve patient safety following hospital discharge. *Journal of Evaluation in Clinical Practice* 2007;13(3):346-351
2. Heisler M, Halasyamani L, Resnicow K, Neaton M, Shanahan J, Brown S, Piette J. "I am not alone": the feasibility and acceptability of interactive voice response-facilitated telephone peer support among older adults with heart failure. *Congest Heart Fail* 2007;13(3):149-157
3. Estabrooks PA, Smith-Ray RL. Piloting a behavioral intervention delivered through interactive voice response telephone messages to promote weight loss in a pre-diabetic population. *Patient Education & Counseling* 2008;72(1):34-41
4. Greist JH, Marks IM, Baer L, Kobak KA, Wenzel KW, Hirsch MJ, Mantle JM. Behavior therapy for obsessive-compulsive disorder guided by a computer or by a clinician compared with relaxation as a control. *Journal of Clinical Psychiatry* 2002;63(2):138-145
5. Greist JH, Mundt JC, Kobak K. Factors contributing to failed trials of new agents: can technology prevent some problems? *Journal of Clinical Psychiatry* 2002;63(2):8-13
6. Katz MJ, Aspden P, Reich WA. Public attitudes toward voice-based electronic messaging technologies in the United States: A national survey of opinions about voice response units and telephone answering machines. *Behaviour & Information Technology* 1997;16(3):125-144
7. Dulude L. Automated telephone answering systems and aging. *Behaviour & Information Technology* 2002;21(3):171-184

Keywords: computerized telephone service, memory, attention, interactive voice response

Address: Delyana Miller University of Ottawa, Canada; E: cmessier@uottawa.ca