



Published in final edited form as:

J Am Geriatr Soc. 2015 April ; 63(4): 797–803. doi:10.1111/jgs.13343.

HELP in the Real World: The Many Uses of The Hospital Elder Life Program (HELP) Website

Pei Chen, MD^a, Sarah Dowal, MSW, MPH^b, Eva Schmitt, PhD^b, Daniel Habtemariam, BA^b, Tammy T. Hshieh, MD^c, Ryan Victor, BS^b, Kenneth S. Boockvar, MD, MS^{a,d}, and Sharon K. Inouye, MD, MPH^{b,e}

^aBrookdale Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, New York, New York

^bInstitute for Aging Research, Hebrew SeniorLife, Boston, Massachusetts

^cDivision of Aging, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts

^dGeriatric Research Education and Clinical Centers, James J. Peters VA Medical Center, Bronx, New York

^eDivision of Gerontology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts

Abstract

Delirium, a common condition in older hospitalized patients associated with substantial morbidity, mortality, and healthcare costs, can be successfully prevented by the Hospital Elder Life Program (HELP). In 2011, HELP transitioned to a web-based dissemination model to provide accessible resources, including implementation materials, information for healthcare professionals and

Corresponding Author: Pei Chen, MD. Brookdale Department of Geriatrics and Palliative Medicine, Icahn School of Medicine at Mount Sinai, One Gustave L. Levy Place, Box 1070, New York, NY 10029. pei.chen@mssm.edu. Telephone number: 212-241-8110, extension 48110. Fax number: 212-860-9737. Alternate Corresponding Author: Sharon K. Inouye, MD, MPH. Aging Brain Center, Institute for Aging Research, Hebrew Senior Life, 1200 Centre Street, Boston, MA 02131. AgingBrainCenter@hsl.harvard.edu. Telephone number: 617-971-5390. Fax number: 617-971-5309.

Conflict of Interest: The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper.

Author Contributions: Dr. Chen had full access to all of the data in the study and takes responsibility for the integrity of the accuracy of the data analysis.

Pei Chen: study concept and design, acquisition of data, analysis and interpretation of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, final approval of the version.

Sarah Dowal: study concept and design, acquisition of data, critical revision of the manuscript for important intellectual content, final approval of the version.

Eva Schmitt: study concept and design, acquisition of data, critical revision of the manuscript for important intellectual content, final approval of the version

Daniel Habtemariam: Acquisition of data, analysis and interpretation of data, critical revision of the manuscript for important intellectual content, final approval of the version

Tammy T. Hshieh: Study concept and design, critical revision of the manuscript for important intellectual content, final approval of the version

Ryan Victor: Acquisition of data, critical revision of the manuscript for important intellectual content, final approval of the version

Kenneth S. Boockvar: interpretation of data, critical revision of the manuscript for important intellectual content, final approval of the version

Sharon K. Inouye: study concept and design, analysis and interpretation of data, critical revision of the manuscript, final approval of the version, obtaining funding, administrative support.

patients/families, and a searchable reference database. We hypothesized that while intended to assist sites to establish a HELP program, the resources offered by the HELP website might have broader applications. We sent an email requesting participation in an online survey of all HELP website registrants from September 10, 2012 to March 15, 2013 to examine the uses of the resources on the website and to evaluate knowledge diffusion related to these resources. Of 102 responding sites, 73 (72%) completed the survey. Thirty-nine (53%) had implemented and maintained an active HELP model. The HELP website resources were used by 26 sites (35%) to plan for implementation of the HELP model and by 35 sites (50%) to implement and support the program during and after launch. Sites also used the resources for the development of non-HELP delirium prevention programs and guidelines. A total of 45 sites (61%) used the website resources for educational purposes, targeting healthcare professionals, patients, families, or volunteers. The results demonstrated that HELP resources were used for implementation of HELP and other delirium prevention programs, and were also disseminated broadly in innovative educational efforts across both the professional and lay communities.

Keywords

Hospital Elder Life Program; delirium prevention; dementia; program dissemination; geriatrics education; web-based training

Introduction

Delirium is an acute confusional state that develops and fluctuates over a short period of time with features of inattention, disorganized thinking, and altered level of consciousness (1, 2). It is one of the most commonly encountered conditions in hospitalized older patients. About 30% of hospitalized medical patients and up to 50% of post-surgical elderly patients experience delirium (3-5). Development of delirium is the cumulative result of predisposing factors and precipitating factors (6). Common risk factors for development of delirium include advanced age, impaired cognition from underlying neurodegenerative disease, vascular disease affecting the central nervous system, medical comorbidities, uncontrolled pain, acute medical conditions, medications or polypharmacy, post-operative states, and other iatrogenic causes (3). Delirium not only leads to increased morbidity and mortality, but also leads to higher economic burden on the health care system, with the estimated cost of ranging from \$ 54 billion to \$ 217 billion in 2013 US dollars each year (7, 8).

The Hospital Elder Life Program (HELP), developed in 1993, is a multi-component intervention shown to be effective for targeting risk factors for delirium in the hospital setting, lowering the incidence of delirium from 15 percent to 9.9 percent (protective odds ratio, 0.60, 95% confidence interval 0.39-0.92) and the duration of delirium from 161 days to 105 days (9, 10). The goals of HELP are to improve hospital care and prevent delirium in older patients to preserve their physical and cognitive functioning, maximize their independence at the time of discharge, improve transitions of care, and prevent unplanned readmissions (9). These goals are achieved with the coordination of care between the primary healthcare team and the HELP staff members, which include an Elder Life Specialist, Elder Life Nurse Specialist, geriatrician, and trained volunteers. The HELP staff

members conduct patient-centered interventions such as the daily visitor program for orientation and social support, exercise program for early mobilization, massage and music to promote sleep, assistance during meals for feeding and hydration, education program for staff and family members, and facilitation of transition from hospital to home. These interventions aim to improve the modifiable risk factors for delirium, including reversible cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment, and dehydration (10).

Since the successful development of HELP, it has been disseminated across the United States and internationally. Originally, HELP utilized traditional strategies for dissemination used by other geriatrics practice models, including presentations at national conferences, peer-reviewed publications, site visits, visiting professor sessions, and grand rounds. From 2000 to 2010, the dissemination was achieved with a dedicated HELP team that provided personal guidance to hospitals that wished to implement HELP. In 2011, the dissemination of HELP transitioned to a web-based model, which allows for access to copyrighted HELP resources, including training manuals and videotapes to establish new HELP sites, training resources for healthcare professionals, resources for patients and caregivers, and a reference database on delirium and acute care (11). The objective of this study was to examine the HELP website as a novel model for dissemination and geriatric education by exploring how sites that registered on the website used the online HELP resources. Since online resources may have broad potential applications, we hypothesized that we would find a wide variety of uses of the HELP materials.

Methods

Description of the HELP Website

The HELP website consists of an unrestricted section available to all viewers and a restricted section available to registrants who accept the terms of agreement, identify themselves, and provide contact information. The unrestricted section contains the following: information for patients and caregivers, resources for clinicians, general information about the HELP model of care, information about the annual HELP conference, frequently asked questions, bibliography, and information about the Confusion Assessment Method (CAM) and FAM-CAM instruments, which are validated and copyright-protected tools used to identify delirium (1, 11). The restricted section includes program resources intended for use by hospitals to start HELP, contact information of Centers of Excellence to help interested sites with implementation, access to 'HELP Google Group', resources for patients, newsletters, and resources from various HELP sites (12). To view the restricted section of the HELP website, registrants would have to provide their e-mail addresses and agree to abide by copyright restrictions as well as a waiver of indemnity. We used the registration information provided to initially contact and screen for potential sites for this study.

Survey of Usage

An initial hard-copy survey was designed and piloted. Questions were chosen by the HELP investigators and intended to cover a range of topics surrounding HELP website and

resource uses. The pilot survey included multiple choice questions for both single-answer option and multiple-answer option, open-ended questions, branch questions, and space for free-text. The survey had a total of twelve sections divided into two parts. The first part of the survey, answered by all participants, included the following sections: basic contact information, general questions pertaining to the use of HELP website, any educational uses of the HELP resources, and geriatric care enhancement with the use of the resources. With regard to use of the HELP website, the questions asked about the intentions of the participating sites for HELP website registration, the actual usage, and application of the HELP website resources since registration. The second part, answered by respondents with an active HELP program, included location and size of the hospital or institution. During the Annual HELP Conference in March 2012, HELP sites (n= 17) participated in a pilot test of the hard-copy survey. Based on the feedback received, modifications were made to produce an adapted 30-minute online survey using REDCap™, which is a secure online application designed to build and deploy online surveys and to capture and manage electronic data for research (13). In addition, one HELP Center of Excellence pilot-tested the online survey. Based on the feedback received, additional modifications were incorporated to the online survey to improve ease of use.

An e-mail invitation was sent to all HELP website registrants on September 10, 2012. Since more than one individual from the same hospital might have registered on the HELP website, we asked registrants from the same site to collaborate and to only submit one survey per site. Only participants who provided electronic consent via REDCap™ could proceed to complete the survey (13). If duplicate surveys were received from the same site, the site was contacted to consolidate the information into a single survey per site. To address incomplete surveys and missing data, multiple individualized reminder e-mails were sent and follow-up telephone calls were made to obtain data. In addition, missing data on organizational characteristics were obtained from hospital or institutional websites. When websites were in non-English languages, experienced translators were used. Data obtained through e-mail reminders and telephone calls were entered manually into REDCap™ by the research team (13). Since it was difficult to verify the accuracy of the self-reporting of HELP website resource usage, the number of unique hits to the webpage components was also examined as a proxy for usage from January 1, 2011 through March 15, 2013. The online survey was open from September 10, 2012 to March 15, 2013. This study was conducted in accordance with procedures approved by the Institutional Review Board of Hebrew SeniorLife.

The data was tabulated and analyzed using standard descriptive statistics, including means, medians, standard deviations, ranges, and percentages. Data from open-ended questions were reviewed independently by two research staff members (PC, SKI) to identify themes. Themes were then compared, and differences were discussed and reconciled.

Results

A total of 102 unique sites initiated the online survey, of which 12 declined to complete, 8 were lost to follow-up, and 9 had incomplete surveys. A total of 73 sites completed the online survey. Of the 73 sites, 39 (53%) had active HELP programs.

Of the 73 sites, 57 (78%) were located in North America, with 33 (45%) in the United States and 24 (33%) in Canada. The other 16 sites were located in 11 countries across Europe (11 sites, 15%), Asia (2 sites, 3%), Australia (2 sites, 3%), and South America (1 site, 1%). The majority (67 sites, 94%) of the sites were non-profit organizations, and most (56 sites, 79%) were teaching hospitals or institutions. Of the 71 sites with complete hospital characteristics, more than half (39 sites, 55%) were located in urban settings. There were 23 sites (32%) and 9 sites (13%) in the suburban and rural settings, respectively. The mean number of beds was 460 (median 396, standard deviation 378, range 42-2200).

The reported initial purpose for registering to the HELP website and the reported use of the resources were generally concordant. However, one site that initially intended to implement HELP used the website resources instead to improve a non-HELP delirium prevention program. Table 1 shows the other reported usage and application of the resources. There were 25 sites (34%) that used the HELP website resources to network with other healthcare professionals. There were 20 sites (27%) and 14 sites (19%) that used the website resources to develop delirium guidelines or to improve non-HELP delirium prevention programs, respectively.

The participating sites also reported that the resources available on the HELP website were used to provide education to diverse audience. HELP resources were used to educate nurses (51 sites, 70%), patients and families (31 sites, 42%), non-nurse staff (26 sites, 36%), trainees (21 sites, 29%), and physicians (20 sites, 27%). The sites further elaborated in the open-ended questions on the types of staff members receiving training, including nursing staff, nursing assistants and patient care technicians, physical therapists and assistants, occupational therapists and assistants, dieticians, pharmacists, psychologists, speech language pathologists, social workers, chaplains, case managers, and housekeeping. The open-ended questions also provided a rich list of students across diverse levels and disciplines, including students in medical school, nursing, pharmacy, physical therapy, occupational therapy, recreation therapy, gerontology, sonography, and high school. Furthermore, specialized trainees included medical interns and residents from different fields, social work interns, geriatrics fellows, psychiatry fellows, and library fellows. Out of the 73 participating sites, 62 sites (85%) reported that HELP has increased the awareness about the importance of geriatric care at their hospitals. Of the 62 sites, 57 (92%) reported that nursing gained the most awareness, followed by physicians (34 sites, 55%). Two sites commented that HELP increased the awareness about geriatric care among their hospital administration and quality improvement programs.

The HELP website offered users an array of information sections and educational modalities (e.g. training videos and manuals), as well as opportunities to obtain support from other HELP sites through Google Groups and HELP Centers of Excellence (Table 2) (12). Some sections of the website were visited more frequently than others based on the number of unique hits. The most visited sections included 'For Clinicians', 'HELP Program', and 'Older Adults/Caregivers', which were presented in webpage, brochure, and handout formats. The 'CAM' section was the next most viewed section. It included a downloadable PDF of the training module with a liability disclaimer, coding guide, and the CAM questionnaire, intended to be used by healthcare professionals, trainees, and staff. The

‘Bibliography’ section, which included a searchable database of over 1,300 articles on delirium and geriatric acute-care, was also frequently visited, and it provided evidence-based information to advance practice, research, and education. The ‘Video’ section, a frequently visited section within the restricted ‘Program Materials’, provided a total of six training videos with a combined duration of 107 minutes, intended to be viewed by healthcare professionals, trainees, and staff. These videos could be streamed or downloaded. The ‘Manual’ section, also within the restricted ‘Program Materials’, contained manuals in PDF format for business tools, overview and structure, clinical process, data collection, and volunteer training—to guide administrative leaders and healthcare professionals interested in implementing the HELP model. Based on the number of unique hits, the ‘Centers of Excellence’ and the ‘HELP Google Group’ sections were the least visited sections of the website. These two sections included mainly instruction on how to become a Center of Excellence and on joining the HELP Google Group, respectively.

In addition to the variety of trainees educated with use of the HELP resources, the survey also revealed diverse mechanisms through which the HELP resources were incorporated into important innovations for geriatric education (Table 3). Education for healthcare professionals took the forms of job orientation sessions, review courses, in-services, didactics, online modules, Grand Rounds, and interdisciplinary conferences. Furthermore, some sites reported having education on delirium provided at ‘Skills Days’ for nurses and personal care assistants. A number of sites supported summer gerontology internships, which included education on delirium and other geriatric syndromes. The survey sites used HELP in collaboration with other related initiatives, such as NICHE (Nurses Improving Care for Healthsystem Elders), which is a nursing-driven program designed to improve care of older adults in the hospital, training programs (e.g. U-First in Ontario) related to care for patients with dementia through the local Alzheimer's Association, and P.I.E.C.E.S. (Physical, Intellectual, Emotional, Capabilities, Environment, Social), which is a holistic approach to caring for patients with complex physical and mental health needs associated with behavioral changes (14-16). The survey sites also reported disseminating HELP concepts into the community through workshops such as geriatric sensitivity and immersion training, community presentations to the general public, and e-learning modules for local schools. One site remarked on holding a conference “for the public...and provided support” on the topic of delirium, recording the conference, and subsequently “disseminating (the recording) to other places.” These sites were able to disseminate widely by partnering with other community organizations, including schools and support groups.

Discussion

Since its development, the HELP program has been successfully disseminated and implemented around the world. Past studies on HELP focused on its efficacy, dissemination, implementation, adaptation, and translation from an evidence-based program to widespread clinical practice (9, 10, 17-19). This study is innovative in examining the educational and knowledge diffusion aspects of HELP website resources. There have been several systematic reviews on web-based interventions targeting conditions such as obesity, alcohol, and tobacco abuse, with results suggesting some improvement with weight reduction, decreased alcohol consumption, and tobacco cessation; however, the trials included did not

always show consistent effects (20-22). To the best of our knowledge, this study is the first to examine the usage of on-line resources from a well-tested delirium prevention program.

The results of this study demonstrated that the HELP website served as an important model for dissemination of information about delirium prevention, with a broad spectrum of uses of the HELP resources around the world. While not specifically designed as an educational intervention, the website resources were used across a broad array of educational initiatives. The HELP resources assisted new sites with training staff and implementing HELP, provided support to the existing HELP sites, established an on-line professional network, and also aided in the improvement of other delirium prevention programs and development of delirium guidelines. Moreover, the usage provided education across broad audiences, including healthcare professionals, trainees, volunteers, patients and caregivers, as well as the lay community. Descriptions of how the HELP resources were being used for education reflected the different types of educational strategies by predisposing the audience to the information, enabling the audience to use the HELP protocols and guidelines, and reinforcing the behaviors by ongoing feedback and reminders from the HELP champions and leadership. A recent systematic review showed that educational strategies that combined the different factors in the Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE) model achieved more effective changes in behaviors and outcomes in recognizing delirium (23). The knowledge diffusion about delirium and its prevention occurred in innovative ways that were not anticipated by the HELP developers. The findings on the educational uses of the website materials will stimulate the HELP program to improve website content to promote knowledge about delirium and its prevention in hospitalized older adults and to further enhance dissemination through the website, social media, as well as more traditional means of dissemination.

This study has several strengths and limitations. The online survey was piloted several times prior to the official launch, ensuring ease of administration. Given the design of the online survey and its flexibility in allowing one to return at a later time, the members within the same participating sites could collaborate to provide more comprehensive answers to the questions. In addition, the open-ended questions and follow-up interviews resulted in rich descriptive statements on the use of the online HELP resources. However, several limitations exist in this study. First, the report is based on self-reported data, which is unconfirmed and may be subject to reporting bias. Hence, we also examined the number of unique hits to the webpage components within the HELP website to obtain objective evidence of usage. While the response rate among those who agreed to participate was adequate (72%), the starting denominator for this study is not known, since many initial registrations were erroneous or for one-time usage only. We acknowledge that not all webpage hits were necessarily for educational purpose, as demonstrated by the results that showed the sections, 'Centers of Excellence' and the 'HELP Google Group,' remained visited sections, although less frequently. These two sections offered mostly instruction to become a Center of Excellence or to join the HELP Google Group. Once the registrant became a member of the HELP Google Group, access to the group for support would not require visit to the 'HELP Google Group' section. The same applied to the 'Centers of Excellence' section. Second, despite the request for individuals of each participating site to collaborate on answering the survey questions, there is no external confirmation that the

answers were results of collaboration. While the 73 sites represented 19 U.S. states and a total of 13 countries, the relatively small number of participating sites tends to limit the widespread generalizability of the results. Finally, evaluation of the impact of the educational interventions on clinical outcomes was beyond the scope of the present study.

In summary, this study showed that the resources on the HELP website are being utilized for creation of HELP, other delirium prevention programs and guidelines, as well as being diffused broadly in innovative educational efforts across both professional and lay audiences. The study demonstrated a full spectrum of the usage of the HELP website. It is hoped that this example of HELP knowledge diffusion can inspire other programs to adopt novel methods of knowledge-to-action translation.

Acknowledgments

This work is dedicated to the memory of Joshua Bryan Inouye Helfand. The authors gratefully acknowledge all of the participating sites, including the following sites that provided permission to be named. Abington Health, PA, USA. Advocate Good Samaritan Hospital, Downers Grover, IL, USA. Baylor Medical Center, Garland, TX, USA. Baylor Medical Center, Irving, TX, USA. Bon Secours Health System- St. Mary's Hospital, Richmond, VA, USA. Hospital Monte Naranco, Oviedo, Spain. Eastern Health- Peter James Centre, Melbourne, Victoria, Australia. Foothills Medical Centre, Calgary, Alberta, Canada. Geriatric University Unit, Centro Hospitalar de Lisboa Norte, Lisbon, Portugal. Grand River Hospital, Kitchener, Ontario, Canada. Groves Memorial Community Hospital, Fergus, Ontario, Canada. Hackensack University Medical Center, Hackensack, NJ, USA. HealthCare System- St. John's Hospital, Maplewood, MN, USA. Howard Young Medical Center, Woodruff, WI, USA. Inova Health System, Falls Church, VA, USA. Inselspital, University Hospital of Bern, Bern, Switzerland. Joseph Brant Hospital, Burlington, Ontario, Canada. Kaiser Permanente, Berkeley, CA, USA. Mackenzie Health, Richmond Hill, Ontario, Canada. Montreal General Hospital, Montreal, Quebec, Canada. National Taiwan University Hospital, Taipei, Taiwan. Ospedale S. Maria delle Croci, Azienda USL della Romagna, Ravenna, Italy. Palmetto Health Richland, Columbia, SC, USA. Park Nicollet Methodist Hospital, ST. Louis Park, MN, USA. Radboud University Medical Centre, Nijmegen, Netherlands. Riverside Shore Memorial Hospital, Nassawadox, VA, USA. Ross Memorial Hospital, Lindsay, Ontario, Canada. Royal Victoria Regional Health Centre, Barrie, Ontario, Canada. Sensenbrenner Hospital, Kapuskasing, Ontario, Canada. University Medical Center Utrecht, Utrecht, the Netherlands. University of Pittsburgh Medical Center- Shadyside, Pittsburgh, PA, USA. Wheaton Franciscan Healthcare- Elmbrook Memorial, Brookfield, WI, USA. Wheaton Franciscan Healthcare- St. Joseph, Milwaukee, WI, USA.

Dr. Kenneth S. Boockvar has grant funding from a nonprofit foundation to implement the Hospital Elder Life Program in the long-term care setting.

Funding Sources: This work was supported in part by Grant No. K07AG041835 (SKI) from the National Institute on Aging and No. 2013-87 (SKI) from the Retirement Research Foundation. Dr. Hshieh is supported by the T32 Training Grant AG000158 from the National Institute of Health. Dr. Boockvar is supported by Fan Fox and Leslie Samuels Foundation, Greenwall Foundation, and Mount Sinai Older Americans Independence Center. Dr. Inouye is supported by the Milton and Shirley F. Levy Family Chair.

Sponsor's Role The funding sources had no involvement in the design, methods, subject recruitment, data collection, analysis, and preparation of paper.

References

1. Inouye SK, van Dyck CH, Alessi CA, et al. Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Ann Intern Med.* 1990; 113:941-948. [PubMed: 2240918]
2. Association AP. *Diagnostic and Statistical Manual.* 4. Washington, DC: DC: APA Press; 1994.
3. Marcantonio ER. In the clinic. Delirium. *Ann Intern Med.* 2011 154:ITC6-1, ITC6-2, ITC6-3, ITC6-4, ITC6-5, ITC6-, ITC-7, ITC6-8, ITC6-9, ITC6-10, ITC6-1, ITC6-2, ITC6-3, ITC6-4, ITC6-5; quiz ITC6-6.
4. Rudolph JL, Jones RN, Levkoff SE, et al. Derivation and validation of a preoperative prediction rule for delirium after cardiac surgery. *Circulation.* 2009; 119:229-236. [PubMed: 19118253]

5. Marcantonio ER, Goldman L, Mangione CM, et al. A clinical prediction rule for delirium after elective noncardiac surgery. *JAMA*. 1994; 271:134–139. [PubMed: 8264068]
6. Inouye SK, Charpentier PA. Precipitating factors for delirium in hospitalized elderly persons. Predictive model and interrelationship with baseline vulnerability. *JAMA*. 1996; 275:852–857. [PubMed: 8596223]
7. Inouye SK, Rushing JT, Foreman MD, et al. Does delirium contribute to poor hospital outcomes? *J Gen Intern Med*. 1998; 13:234–242. [PubMed: 9565386]
8. Leslie DL, Marcantonio ER, Zhang Y, et al. One-year health care costs associated with delirium in the elderly population. *Arch Intern Med*. 2008; 168:27–32. [PubMed: 18195192]
9. Inouye SK, Bogardus ST Jr, Baker DI, et al. The Hospital Elder Life Program: A model of care to prevent cognitive and functional decline in older hospitalized patients. *Hospital Elder Life Program J Am Geriatr Soc*. 2000; 48:1697–1706.
10. Inouye SK, Bogardus ST Jr, Charpentier PA, et al. A multicomponent intervention to prevent delirium in hospitalized older patients. *N Engl J Med*. 1999; 340:669–676. [PubMed: 10053175]
11. The Hospital Elder Life Program (HELP). Hospital Elder Life Program, LLC. [cited 2014 February 28]. Available from: <http://www.hospitalelderlifeprogram.org/public/public-main.php>
12. Google Groups. Hospital Elder Life Program: Google. 2014. [updated 2014; cited 2014 March 1]. Available from: <https://groups.google.com/forum/?hl=en#!forum/elderlife>
13. Harris PA, Taylor R, Thielke R, et al. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009; 42:377–381. [PubMed: 18929686]
14. Fulmer T, Mezey M, Bottrell M, et al. Nurses Improving Care for Healthsystem Elders (NICHE): Using outcomes and benchmarks for evidenced-based practice. *Geriatr Nurs*. 2002; 23:121–127. [PubMed: 12075275]
15. Hamilton, P.; Harris, D.; LeClair, K., et al. *A Learning Resource for Professionals Providing Long-Term Care to Older Adults with Complex Physical and Cognitive/Mental Health Changes*. 6th. Shop for Learning Publishing; 2008. Putting the P.I.E.C.E.S Together: A Model for Collaborative Care and Changing Practice.
16. U-First: Alzheimer Society of Ontario. 2011. [cited 2013 November 10]. Available from: <http://u-first.ca/>
17. Bradley EH, Webster TR, Baker D, et al. After adoption: Sustaining the innovation. A case study of disseminating the hospital elder life program. *J Am Geriatr Soc*. 2005; 53:1455–1461. [PubMed: 16137272]
18. Bradley EH, Webster TR, Schlesinger M, et al. Patterns of diffusion of evidence-based clinical programmes: A case study of the Hospital Elder Life Program. *Qual Saf Health Care*. 2006; 15:334–338. [PubMed: 17074869]
19. Inouye SK, Baker DI, Fugal P, et al. Dissemination of the hospital elder life program: implementation, adaptation, and successes. *J Am Geriatr Soc*. 2006; 54:1492–1499. [PubMed: 17038065]
20. Arem H, Irwin M. A review of web-based weight loss interventions in adults. *Obes Rev*. 2011; 12:e236–e243. [PubMed: 20804523]
21. Cijljk M, Sheikh A, Stead LF, et al. Internet-based interventions for smoking cessation. *Cochrane Database Syst Rev*. 2010:CD007078. [PubMed: 20824856]
22. White A, Kavanagh D, Stallman H, et al. Online alcohol interventions: A systematic review. *J Med Internet Res*. 2010; 12:e62. [PubMed: 21169175]
23. Yanamadala M, Wieland D, Heflin MT. Educational interventions to improve recognition of delirium: A systematic review. *J Am Geriatr Soc*. 2013; 61:1983–1993. [PubMed: 24219200]

Table 1
Reported Usage of the HELP Website Resources, N = 73

Reported Usage	Usage, No. sites (%)^a
Education (general)	45 (61)
Nurses	51 (70)
Patients and families	31 (42)
Non-nurse staff	26 (36)
Trainees	21 (29)
Physicians	20 (27)
Volunteers	9 (12)
Implement HELP model (underway or completion phase) and to provide support after launch	35 (50)
Implement HELP model (planning phase)	26 (35)
Networking with other health care professional	25 (34)
Development of delirium guidelines	20 (27)
Improve a non-HELP delirium prevention program	14 (19)

^aPercentage exceeds 100% total since sites may have had multiple uses.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2
Leading Educational Tools Used on the HELP Website (January 1, 2011 through March 15, 2013)

Section(s) (Unique Hits) Type of Section	Format(s)	Description	Audience
For Clinicians (16169) Unrestricted	Webpages	These webpages include information on delirium references and related website links.	Healthcare professionals, trainees, and staff
The HELP Program (15931) Unrestricted	Webpages, brochures	These webpages include information on the HELP model of care, the team members, interventions, overview on program initiation and challenges, testimonials, and news.	Healthcare professionals, trainees, staff, volunteers, patients and families.
Older Adults/Caregivers (12419) Unrestricted	Webpages, brochures, and handouts	These webpages include information on delirium, its prevention, communication with healthcare professionals, transitional issues, and resource website links.	Patients, families, caregivers, healthcare professionals, trainees, staff, and volunteers.
Confusion Assessment Method (CAM) (11410) Unrestricted	Webpage and downloadable PDF	This webpage includes liability disclaimer, training manual, coding guide, and the CAM questionnaire.	Healthcare professionals and trainees
Bibliography (7150) Unrestricted	Searchable bibliography	This contains a searchable bibliography engine on delirium related articles.	Healthcare professionals, researchers, and trainees
Program Materials: Videos (2987) Restricted	Video stream, downloadable MPG, MP4	This webpage contains six videos to illustrate the HELP overview and interventions.	Healthcare professionals, trainees, staff, and volunteers.
Program Materials: Manuals (2490) Restricted	Webpage and downloadable PDF	This webpage includes overviews of the five HELP manuals for implementation and the manuals.	Administrative leaders and healthcare professionals

Table 3
HELP Knowledge Diffusion: Reported Uses of HELP Website Resources (N = 73)

Resource Use	Target Audience (or Stakeholder)	Description
Education on delirium	Healthcare professionals	<ul style="list-style-type: none"> • Job orientations sessions • In-services, lectures, Grand Rounds • Didactics and review courses • Online modules • Professional conferences • Training rotations for residents • Annual nurse skill day • Gerontology internships
	Researchers	<ul style="list-style-type: none"> • Support for paper and grant-writing • Academic collaborations (e.g. with local universities)
	Volunteers	<ul style="list-style-type: none"> • Training volunteers
	Community agencies	<ul style="list-style-type: none"> • Community workshops and lectures • Geriatric awareness classes • Community E-modules
Prevention of delirium	Healthcare systems Administrative leaders Healthcare professionals	<ul style="list-style-type: none"> • Implementing and adapting HELP • Delirium guidelines and pathways • Utilizing reference database for evidence based practices • Establishing other delirium prevention programs
Support and community linkages	Patient, families, caregivers	<ul style="list-style-type: none"> • Developing support networks
	Community agencies	<ul style="list-style-type: none"> • Partnering with other organizations, such as Alzheimer's Association • Information sharing with homecare agencies