

## Internet Recruiting: Lessons Learned From a Failed Worker's Compensation Back Pain Education Program

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### Abstract

**Background:** The Internet has the potential to become a powerful tool for the delivery of health education programs. However, it also presents challenges with recruitment and data collection. This paper reports on the failed recruiting efforts for a back pain Internet patient education study. **Methods:** Six hundred injured workers with back pain were needed for the study. To be eligible one must have been on disability and missed more than 10 days of work. Recruitment efforts included use of electronic medical records to identify potential subjects, web site links, direct mailings, phone calls, talks with clinic staff, as well as brochures and pamphlets in the clinic. **Results:** Over a fourteen-month period, only 20 subjects were recruited. A study of the barriers to recruitment revealed system related problems including: missing data in electronic medical records and inability to integrate recruiting into the medical visit. Individual problems such as computer access and language also posed barrier to recruitment. **Conclusions:** Developing a screening tool to identify patients who are most at risk for developing chronic back pain or re-injury may be necessary for successful recruitment. In addition, creative recruitment efforts as well as collaboration with on-line organizations such as disease specific advocacy groups, health plans, e-health publications and newsletters, employee wellness websites, as well as collaborating with other state workers compensation and insurers web sites may prove to be more effective means of recruiting on-line for injured workers.

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### Introduction

The Internet has the potential to be a powerful tool for the delivery of health education programs. As more patients are going "on-line", the ability to connect patients with each other and with health professionals could positively affect health care delivery and ultimately health outcomes. However, before providing services to an Internet "community", the community must first be formed. This study examines one attempt at finding participants for an on-line Internet health education program.

### Background

The Stanford Patients Education Research Center in partnership with Kaiser Permanente "On the Job", and the State of California's Division of Workers' Compensation set out to disseminate and evaluate the effectiveness of a "new generation" program for injured workers with Low Back Pain (LBP). The forum for this program was to be a closed, professionally moderated Internet email discussion group.

Disability resulting from low back pain has become a public health problem. To address the problem, Healthy People 2010 objectives outline goals to reduce the rate of activity limitation due

to chronic back pain (US Department of Health and Human Services, 2001). Low back pain is the most common cause for filing workers' compensation claims in the United States, and is second only to the common cold for days missed from work (Guo, Tanaka, Halperin, & Cameron, 1999). Low back pain injuries account for about one-fourth of all workers' compensation claims and about 33% of all workers' compensation costs (Andersen, Pope, Frymoyer, Snook, 1991; Guo et al., 1995). The Agency for Healthcare Research and Quality has published guidelines indicating that although findings are mixed, there is moderate evidence that patient education programs may reduce incidence of back pain, reduce physician visits, or improve quality of life (Bigos et al., 1994). However, most low back pain education studies are poorly described in the literature, and the findings from these programs are mixed. No studies were found that used an on-line intervention for a workers' compensation population.

One randomized back pain study found significant improvements in health outcomes through the use of a moderated email discussion board. Nearly six hundred back pain patients not receiving disability payments were recruited largely through donated banner advertisements on the Internet search engine Yahoo. This study demonstrated that persons with recurrent back pain who participated in a moderated email discussion group when compared to usual care controls demonstrated less disability, pain, health distress, and fewer back pain visits to physicians (Lorig et al., 2002).

Previous on-line studies have found the Internet a viable place to conduct research. Internet research participants are recruited from a variety of sources including email based discussion groups, web based news groups, Internet search engines, live chats, web links, as well as traditional print media and physician referrals. Internet recruitment enables researchers to recruit for a special sub population through Internet newsgroups and topic related email list serves (Musch & Reips, 2000). Work by Alexander and Trissel, used the Internet to recruit participants with chronic prostatitis

for an on-line medical survey. Over a two-month period 163 surveys were completed. The survey was posted to 2 different prostatitis newsgroups on the Internet and to several general medical newsgroups of popular Internet service providers (Alexander & Trissel, 1996). In a similar medical survey study researchers used an Internet survey to look at the relationship between breast-feeding and the physical and psychological health of mothers. Subjects were recruited via announcements on newsgroups with a focus on parenting, infants or children. Over a three-year period 1265 responses to the survey were received (Mezzacappa, Guethlein, & Katkin, 2002.)

Although recruitment via the Internet appears to be the most utilized recruitment strategy for web studies, a previous web based study successfully recruited participants without using the Internet. Feil et al recruited 320 study participants with novice Internet experience via physician referrals. Researchers contacted potential via telephone for a screening interview, and all follow-ups were conducted via telephone or US mail. (Feil, Glasgow, Boles, & McCay, 2000.)

Although no studies found used an on-line intervention for a workers' compensation population, the future looks bright for Internet use among this group. Data from a previous study does suggest that some injured workers with back pain are already using the Internet. Thirteen percent of participants (total N=580), who failed the eligibility requirements for the moderated discussion group, did so because they were receiving worker's compensation or disability payments for their back problems (Lorig et al., 2002). Internet use among the general population also appears to be on the rise. In the Spring of 2002, 58% of Americans reported using the Internet, while 40% reported having used the Internet for the past 3 years. It is estimated that two-thirds of U.S. households are on-line in 2003. Since August of 2000, Internet use has been roughly equally divided between men and women. Health-related topics receive approximately 6 million hits a day. Of those with Internet access, 55% have used the web to get health-related or medical information. Sixty-seven percent of Americans expect that

they can turn to the Internet to find reliable information about health or medical conditions (<http://www.pewinternet.org/index.asp>). These numbers, along with the data from the previous back pain study, suggested that there is a community of injured workers on-line, and that an intervention could be sustainable.

Traditionally, previous low back pain education programs have seldom addressed many of the concerns of patients, mainly, the ability to make a decision about when their condition is potentially harmful, and most importantly, how and when to return to normal activity (McPhillips-Tangum, Cherkin, Rhodes, & Markham, 1998; Rhodes, McPhillips-Tangum, Markham, & Klenk, 1999). Injured workers, who may be especially fearful that resuming work activities may exacerbate back pain or lead to more serious injury, may benefit from a LBP patient education program that addresses these issues. Previous research found that the probability of ever returning to work was dramatically reduced after 3-6 months off of work (Cheadle et al., 1994). Earlier workplace interventions that focused on return to work (RTW) achieved important reduction in time lost from work when implemented between 3 and 12 weeks after onset of pain (Loisel et al., 1998).

Recruitment criteria for the current study were selected based on The Agency for Healthcare Research and Quality (AHRQ) guidelines, and earlier work from workplace interventions focused on return to work (RTW) data. Similarly, in the current study, return to work eligibility for days missed from work was set at a range between 10 days and 160 days. The current intervention's aim was to catch patients in this window in an attempt to decrease days lost from work.

The Work Injury Support and Education (WISE) study was to replicate previous research using moderated email discussion boards but with a disability population and different recruitment strategies. Due to the large number of injured workers who were disqualified from the previous study, recruitment strategies were directed towards this population. WISE was a project to implement a "new generation" low

back pain patient education program, which differs from past patient education interventions in its emphasis on decision-making, problem solving, and early return to normal daily activities and life style. This new approach consists of personalized group education through a closed, professionally moderated, Internet email discussion group. Patients would also receive supportive materials, a book and videotape to compliment the program.

WISE set out to determine if outcomes similar to the previous email discussion group would result if a moderated email discussion group were used with workers who have been injured on the job and had been diagnosed with Low Back Pain (LBP). The main outcome measures included: 1) quality of life (pain, disability, illness intrusiveness, and health distress); 2) work disruption (return to work, days lost from work, and the availability and the nature of the workplace modifications); 3) health care utilization (outpatient visits to physicians, chiropractors, and physical therapists, use of narcotic medication, and nights in the hospital); and 4) satisfaction with (how claims were handled, medical care and work modifications). This study was terminated because of the inability to recruit participants. This paper discusses recruitment efforts and identifies the problems that led to the early termination of the study.

## Methods

A specific set of criteria was used in order to recruit those currently going through the workers' compensation system for a recent work related injury. Eligible participants met the following criteria:

1. Having had an out-patient visit for a work related low back pain episode of less than three months duration.
2. Diagnosis of acute or recurrent low back pain supplied by a health care provider and not have any of the "red flag" symptoms (back pain accompanied by unintended weight loss, pain not improved with rest, back pain secondary to significant trauma, acute onset of urinary retention or overflow incontinence, loss of anal sphincter tone or

- fecal incontinence, saddle anesthesia, global or progressive motor weakness in the lower limbs).
3. Missing at least 10 days but no more than 160 days from work.
  4. Have filed for workers' compensation benefits for the current episode of low back pain.
  5. Accessibility to the Internet and an active email account.

These criteria were selected based on the Agency for Healthcare Research and Quality (AHRQ) guidelines and earlier work from workplace interventions that focused on return to work (RTW) and were implemented between three and twelve weeks after onset of pain.

The WISE intervention was modeled after a previous Internet back pain study consisting of 3 parts: a closed e-mail discussion group for participants and professional moderators, a copy of The Back Pain Helpbook and a back pain videotape (Lorig et al., 2002). The WISE intervention was designed with two major components. The first would allow subjects to talk with each other, sharing ideas, concerns and experience. This feature provides for social support, modeling and reinforcement. The discussion group would allow subjects to share their personal experiences. The discussion group would also allow subjects to ask questions of each other and of back pain experts. WISE was designed to have group moderators and content experts including: a physician with expertise in back pain, a physical therapist, psychologist, an occupational health nurse, and a Department of Workers' Compensation Information and Assistance Officer. The content experts role was to answer general questions and comment relevant to the email discussion, but they would not be allowed to give individual medical advice.

The study hoped to recruit 600 WISE participants from Kaiser "On the Job" clinics. Kaiser contracts with the State Compensation Fund, California's largest workers' compensation insurer. Currently, 31 Kaiser Permanente Occupational Health Centers see patients in the Northern California Region,

staffed by 89 physicians and 23 occupational health nurses. The program's patient volume is approximately 404,000 visits annually. There are approximately 4750 new occupational patients visit each month, of which 25% are visits for work related low back pain.

The Kaiser "On the Job" program was also selected because of their electronic records system that tracks patients seen at Kaiser Occupational Health Centers. This electronic record system allows for identification of LBP patients who had recently been injured on the job and seen at Kaiser Occupational Health Clinics.

The study design utilized a variety of traditional and web based recruitment strategies. Occupational Health Physicians were informed about the WISE program through Provider meetings and in-services. Clinical managers at all 31 Occupational Health Centers received recruitment packets made up of fact sheets and patient brochures. The clinical managers served as gatekeepers to the program, and were responsible for distributing recruitment materials to the clinicians as well as the patients. Patient waiting rooms displayed WISE brochures, and in some clinics, brochures were inserted into the charts of eligible patients. Kaiser identified a total of 5,177 participants in the electronic record system based on a recent work related injury and diagnosis of LBP. All of these patients were contacted using direct mailing, and many received recruitment calls inviting them to join the WISE program. Patients also received follow-up mailings with invitation letters for the WISE program. In addition, the State of California's division of Workers' Compensation website displayed information about the program and provided a web link to the official WISE study website. All recruitment materials directed potential WISE participants to the study web site which gave participants detailed information about the study, including an informed consent and enrollment questionnaire.

In a follow-up study to determine what type of web based information or intervention would be helpful for low back pain patients receiving worker's compensation benefits, participants

were asked to fill out a web based survey. Web links directing potential participants to the survey were placed on Yahoo health discussion groups, a workers compensation list serve, and the home page for the Stanford Patient Education Research Center. As an incentive for filling out the survey, participants received a back pain educational video or book.

**Results**

Web traffic to the WISE site revealed that 18 of 101 people who applied for the WISE program did so as a result of Kaiser on the Job recruitment efforts. Patient brochures placed in waiting rooms and patient charts as well as direct provider referrals yielded a total of zero study applicants. All Kaiser applicants had been recruited via a mailed brochure and/or a phone

call inviting them to join the program. A total of 279 received 2 mailings, and 642 patients received follow-up telephone calls in addition to a mailed letter. In addition, 64 people who had expressed interested over the phone and had been emailed the link to the study site, received follow-up phone calls. There was no overlap among these groups except for those receiving two phone calls. The remaining 83 WISE applicants were recruited via the Internet. The only published web link to the WISE website was on the State of California’s Division of Workers’ Compensation website. No other recruitment was done on-line. Table 1 represents the results of each recruitment effort. Table 2 summarizes the responses to recruitment telephone calls.

Table 1  
Results by Method of Recruitment

Recruitment Method	Number of Those Recruited Who Were Eligible
Patient Brochures	0
1 mailing (N=5172)	2
2 mailings (N=279)	4
1 mailing in addition to 1 phone call (N=642)	4
1 mailing in addition to 2 phone calls (N=64)	0
Link to WISE website from Worker’s Compensation website or other web source.	10

Table 2  
Summary of Phone Calls to Kaiser on the Job Patients With a Primary Diagnosis of Low Back Pain

Recruitment Response	Number of Responses
<b>Total contacted via phone (n=153)</b>	
Yes, interested; emailed link	48
Yes, interested; will check out link, given web address	8
Yes, interested; in process of setting up email	7
Maybe interested; given web address	13
Not interested; Spanish primary language	18
Not interested; No access to computer	46
Not interested; Doesn’t know how to use computer	6
No longer having back pain	12
Other	21
<b>No phone contact (n=479)</b>	<b>Number of Attempts</b>
No answer	124
Left message	293
Wrong phone number	62

Recruitment efforts from all recruitment sources yielded a total of approximately 1500 web site hits to the WISE study website. The web site hits resulted in a total of 101 people who applied for the WISE study; 20 were eligible. The majority of those not eligible for the WISE study had not missed more than ten days of work (median seven days) or was not currently receiving Workers' Compensation. There were no significant differences in age or sex. Of the twenty people that qualified for the program, ten were directed to the study site from Kaiser on the Job recruitment efforts, and ten were

directed from Internet recruitment via the Division of Workers' Compensation web site.

In our follow-up web survey for injured workers, recruitment announcements placed on professional list serves and health related web sites and discussion boards generated 400 hits to the study web page. Sixty injured workers were eligible and completed the study survey. A list of web resources was listed on the survey, and participants were asked to choose as many as they wished. A summary of these responses is in Table 4.

Table 3  
Summary of Follow-up Calls to Patients Who Had Expressed Interest Over the Phone  
and Were Emailed the Link to the Study  
Total contacted (n=64)

Recruitment Response	Number of Recruitment Responses
Received email but too busy to go to web site.	6
Received email-"site was closed/program full"	1
Has not checked email since sent the link	10
Email address that was given was incorrect, resent to new address	5
Changed email address	1
ISP not active, is now working	1
Email account not set up yet	2
Already registered on-line	5
Not Interested	4
Not able to contact via phone or email	29

Table 4  
Summary of Web Based Survey for Injured Workers  
Total surveys completed (n=60)

Type of Resources Injured Workers Would Like to See on the Web	Number of Responses
Links to credible back pain education web sites	45
Back pain education book and video recommendations	30
Information about the latest treatments and research for back pain	52
Information about exercise for back pain	41
Chatroom – A live discussion group with other injured workers and/or experts	30
Discussion Board – a place where you can go to post messages about your back pain or other worker's compensation questions, receive support from injured workers, and provide assistance to others by answering their questions	32
Email Discussion Group – an email list serve where you can send and receive feedback about your back pain and worker's compensation questions via email	17

The majority of those who filled out the survey wanted to see information about the latest treatments and research for back pain. No data for this study were collected on gender, race, or ethnicity, as no identifying information was collected.

### **Discussion**

After an intensive recruitment effort spanning May 2001 until February 2002, it was decided that the WISE Back Pain Program could not be sustained. Recruitment challenges were encountered due to system problems. Most notably, the inability of the electronic record system to accurately track days lost from work. Although there was a field in the database for the RTW date, this data was often missing from participant records. Thus, many of the people contacted were not eligible because they had already returned to work.

Missing return to work (RTW) data in the electronic record system posed the biggest barrier. Data tracking RTW dates were often missing from the electronic record system, making it difficult to recruit patients within the specific enrollment window. Without a timely or accurate way to capture RTW data in the electronic records system, recruitment efforts were consumed contacting Kaiser on the Job patients who were not eligible for WISE. The majority of participants who applied for the WISE program and did not qualify had returned to work within 10 days of their injury date. Without adequate RTW data, study entrance requirements were too narrow to recruit the 600 subjects that had initially been projected.

Since RTW is difficult to capture, future interventions could benefit by utilizing alternative recruitment methods to identify and screen patients who are most in need of the intervention. The small segment (5-10%) of LBP patients who become chronically disabled and don't return to work within a few week or months accounts for more that 75% of total compensation costs for all back pain injuries (Spengler et al., 1986). Several researchers have found alternative approaches for identifying this subset of injured workers. (Alexander & Trissel, 1996; Burton, Tillotson, Main, Hollis, 1995;

Hasenbring, Marienfeld, Kuhlendahl, Soyka, 1994; Hazard, Haugh, Reid, Preble, & Mac Donald, 1996; Klenerman et al., 1995; Valet, Goupille, Vedere, 1997). Hazard et al. found the Vermont Disability Prediction Questionnaire an effective means for identifying back-injured workers at relative risk for chronic disability (Hazard et al., 1996). Future interventions could benefit by using such a screening tool to evaluate relative risk for chronicity. Recruitment could then be focused on a specific sub-population of injured workers shown to be at higher risk for re-injury or chronic LBP.

An additional system barrier to recruitment was the use of clinic managers as gatekeepers to disseminate recruitment materials. There were no champions within the clinics that actively promoted the program. Recruitment flyers and brochures were not consistently posted or given to patients. Adequate dissemination of the program required recruitment strategies that did not depend on the clinic supervisors. Finally, it was hoped that information about the study could be placed inside the disability checks of those receiving workers' compensation benefits. However, the worker's compensation insurance companies handling disability checks were unwilling to do this.

Lack of computer access and non- English speakers was also encountered in a recruitment trial for a previous web-based intervention. The Foundation for Accountability (FAACT) recruited participants for an on-line intervention from a variety of sources including labor unions, employers, medical groups, and advocacy groups to view web based health care coaching tools developed to help consumers better understand quality of care (Foundation for Accountability, 2002). Overall response rates via mass mailings from the union population were less than 1%.

The fact that an equal number of eligible participants were recruited from the Division of Workers' Compensation's website link as from an extensive mail and phone effort suggests that a successful and cost-effective recruitment strategy could be designed solely with on-line efforts. Future interventions may want to pursue

a more targeted online recruitment strategy in order to recruit subjects.

In our current study of injured workers, targeted recruitment messages placed on-line in health related discussion boards and web sites have proven to be successful. All of the survey participants were recruited online, no mass mailings or paper based recruitment sources were utilized. It appears that a majority of the injured workers surveyed would like to see a variety of resources on-line including information about treatments, exercises, credible web sites, and discussion boards or chat rooms.

### **Conclusion**

While there is still much to be learned about how to best recruit for on-line interventions, it appears that there are system barriers that make traditional recruitment efforts of limited value. Although failed recruitment efforts led to the

discontinuation of the WISE program, there is modest evidence from previous and current studies indicating that the Internet is a viable way to recruit for and conduct on-line health education programs. The use of a screening tool to identify at risk patients, enhanced methods to capture RTW data, and focusing on injured workers already known to have on-line access are all strategies to enhance the viability of on-line health education programs for injured workers.

Collaboration with on-line organizations such as disease specific advocacy groups, health plans, e-health publications and newsletters, employee wellness websites, as well as collaborating with other state workers' compensation web sites and insurers' web sites may also prove to be more effective means of recruiting on-line for injured workers.

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