Engaging workers in health promotion and health protection efforts: A participatory approach for innovation and sustainability at two worksites

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Summary
An evidence-based approach to achieve more sustainable and effective workplace health promotion and protection programs is currently being tested by the *Center for Promotion of Health in the New England Workplace* (CPH-NEW; http://www.uml.edu/centers/CPH-NEW). Modeled after participatory ergonomics programs, small "design teams" of employees engage in iterative design of interventions to address their prioritized health concerns. An opportunity for employees to become stakeholders in these interventions is considered a key design factor for program success and sustainability. Program start-up depends on gaining both administrative and union support, assessing organizational readiness for participatory efforts, and creating meaningful support roles for supervisors. A multi-level steering committee with union and management representation is charged with supporting design team activities. Design teams initially focus on the health priorities revealed in survey responses to open-ended questions about work and non-work factors affecting health, and revealed in employee focus groups. Design team members receive training on teamwork skills and on basic principles of ergonomics and health promotion tailored to employee-selected health priorities. Ergonomic and health promotion professionals provide assistance as needed, such as helping make the business case for an intervention. The proposed integrated approach is expected to complement existing programs in ergonomics, health promotion, safety, and total quality management (TQM), and to support organizational change and innovation.

Background
As highlighted in a number of presentations at this *Second International Workshop on Work and Intervention Practices*, healthy organizations use a combination of proactive and compensatory approaches to manage employee health. The growing interest in workplace health promotion programs reflects a general recognition of the need to invest in more proactive approaches. However, despite significant investments in workplace health promotion programs to help employees develop healthy lifestyles during work and non-work hours, many of these programs are ineffective due to low rates of employee participation and a lack of sustainability.

The WorkLife Initiative by the United States National Institute for Occupational Safety and Health (NIOSH; http://www.cdc.gov/niosh/worklife) has funded three centers for research excellence to establish trans-disciplinary research, education, and translation programs to facilitate the integration of health protection and promotion in the workplace. In the *Center for the Promotion of Health in the New England Workplace* (CPH-NEW;

http://www.uml.edu/centers/cph-new/), a multidisciplinary team of researchers at two universities have developed the evidence-based approach described here that increases worker involvement in an integrated health protection and health promotion program.

A key feature of the CPH-NEW experimental approach currently being tested in field studies is to engage small design teams of employees in the iterative design of workplace interventions to address their prioritized health concerns. The program's dual focus on health protection and health promotion permits integrated approaches to be developed that complement conventional initiatives in workplace health protection (e.g., ergonomics, industrial hygiene, safety, etc.) and health promotion (e.g., assisting workers in improving health behaviors; exercise programs during work, etc.). Engaging employee design teams in the design of interventions is expected to greatly contribute to program sustainability because employees can become stakeholders in these interventions. Below we describe the conceptual basis of the approach, the role of design teams and potential benefits, the implementation strategy used in one of our field studies, and some preliminary evidence of program success.

Participatory Ergonomics for Health Protection and Health Promotion

Conventional workplace health promotion programs are generally top-down approaches for improving employee health because the choice of specific interventions for health promotion is often made by management and/or the professionals who run these programs. In addition, these interventions are typically "stand-alone" initiatives that seldom require integration with, nor changes to work organization. In contrast, the CPH-NEW approach advocates a bottom-up approach that addresses the influence of the organization of work on individuals' health attitudes and behaviors. Participatory ergonomics (PE) is one model of an approach to engage workers in bottom-up design efforts for improving employee health protection and health promotion, hereafter denoted as ***PExHP*** (Henning, Warren, Robertson et al., 2009). Conventional PE programs involve small groups of representative workers who receive training on ergonomics principles and then function in design teams and engage in iterative design of workplace interventions. This same approach is followed in a *PExHP* program except that the design team also receives training on principles of health promotion, group process, outreach to other employees, and evaluation of health impacts.

PE programs have been used successfully to address biomechanical issues such as repetition, force, static/awkward postures; psychosocial issues such as the need for autonomy and social support; and organizational issues involving complex sociotechnical systems (Imada, 2002; Haro & Kleiner, 2008). Although it is not unusual for conventional PE program activity to benefit worker health (e.g., Laitinen, Saari, Kivisto & Rasa, 1997; Vink, Koningsveld & Molenbroek, 2006), because this is explicitly a central goal of ergonomic design, to our knowledge it is unusual for programs of this type to focus additionally on the design of health promotion interventions. The *PExHP* approach shares features in common with a "health circles" approach popular in Europe, where employees are similarly engaged in seeking organizational solutions to health issues (Aust & Ducki, 2004; Bauer & Jenny, 2007). However, health circles do not typically seek to apply formal ergonomics principles nor to incorporate PE methods that have been so effective.

We see a number of advantages of engaging employees in a *PExHP* program. For one, methods for implementing successful PE programs are reasonably well established, with a number of useful tools and reports of lessons learned currently available in the literature; for example, a "participatory ergonomics blueprint" for guiding PE program implementation (Wells, Norman, & Frazer et al., 2003; Van Eerd, Cole, Irvin et al., 2008) and a framework for evaluation (Haines, Wilson, Vink & Koningsveld, 2002; Cole, Ribvilis, Van Eerd et al., 2005). As a sub-area of macroergonomics (Hendrick & Kleiner; 2002; Wilson & Haines, 1997), PE brings with it a conceptual framework and an ergonomic tool set for understanding and implementing changes in work organization. Another important advantage of using *PExHP* design teams consisting of representative employees who share jobs at the same level of the organization is that they are well positioned to identify and prioritize the most salient health hazards in these jobs. *PExHP* design teams so constituted also provide a forum where employees can speak more openly about health concerns, increasing the likelihood that a wide range of employee health concerns will be addressed. Additionally, small representative design teams can rapidly respond to changing conditions and health needs, regardless of whether these changes are caused by factors internal or external to the organization. Such agile organizational responses are desirable during periods of rapid organizational change and global economic uncertainty.

Another advantage to the proposed use of *PExHP* design teams is the potential for synergistic effects with other workplace programs, such as conventional safety programs and health promotion programs. *PExHP* design team activities are intended to complement rather than supplant the core functions of any such existing programs. For example, while safety committees are usually well equipped to identify workplace factors contributing to injuries or accidents, a *PExHP* design team might identify a source of workplace stress that negatively impacts employee sleep habits. An intervention by the *PExHP* design team that reduces this source of workplace stress may decrease the risk of workplace accidents caused by employee sleepiness. A health promotion program being informed of this stress problem by the *PExHP* design team might respond with a targeted health promotion intervention such as providing training in stress coping skills. Unique combinations of ergonomics interventions with health promotion interventions are also possible, such as tailoring job demands (e.g., to increase walking distances) and health promotion activities (e.g., provide materials so that employees can track their daily walking distance) to better complement one another.

Management might also consider supporting a *PExHP* program as a complement to an existing Total Quality Management (TQM) program. Use of *PExHP* design teams to identify and control health hazards is very similar to the TQM practice of using "quality circles" of workers to identify and solve quality control issues. Therefore, a natural synergy can develop between a TQM program and a *PExHP* program because the roles of employees and management have so much in common. Evidence that accident rates are lower in companies with active TQM programs has already been noted (Smith, 2002). It is also noteworthy that employee health promotion efforts parallel Deming's pioneering recommendation that management efforts should focus additionally on "upstream" quality factors (e.g., the raw materials delivered to a manufacturing facility; Robertson, Kleiner & O'Neill, 2002) since these can impact product quality. In an analogous manner, any behaviors affecting employee health, occurring either inside or outside of the workplace, can be considered "upstream factors" for maintaining employee health and safety during work activities. According to this logic, any lifestyle choices

of employees that cause ill health ("variance" in TQM) deserve the attention of management because of their potential to impair an employee's ability to perform quality work. Thus, the *PExHP* program being proposed is ideally suited to help fulfill the management need to preserve work quality through the identification and control of sources of employee ill health.

Implementation Strategy and Examples from Field Study

CPH-NEW has developed an implementation strategy for the *PExHP* approach that includes the following steps, with examples from an ongoing field study provided below:

1. Assess organizational readiness for participatory efforts (Reeves & Henning, 2008) and health promotion efforts
2. Formation of a multi-level steering committee for providing:
   - general oversight
   - top-down support
   - coordination of union support
   - feasibility evaluations of proposed interventions
   - resources, internal (e.g., time, equipment) & external (e.g., ergonomics training)
   - help with program evaluation
   - a clearinghouse for communication about the *PExHP* program
3. Formation and training of a representative *PExHP* "design team" of line workers
4. Creation of meaningful support roles for mid-level managers and supervisors.

<u>1. Assessing Organizational Readiness</u>

The host organization is a large, for-profit long term care provider based on the east coast. The sites on the study were not unionized. The intervention study was designed to compare the effectiveness of participatory (worker driven) versus traditional (management driven) ergonomics and wellness program activities on self reported health and psychosocial work environment indicators among care-giving staff in nursing homes.

Site selection was performed to screen prospective sites carefully for cooperative management style and willingness to try new programs. The goal was to identify approximately equivalent sites, any of which could be used for intervention or control sites. The selection process included open-ended interviews with the Administrator and Director of Nursing (the top management positions in nursing homes), the wellness coordinator (a volunteer role for an employee), and multiple focus groups with care giving staff (mostly certified nursing assistants, the largest category of nursing home job titles) in each site. Interviews with nursing home management focused on topics such as management/employee stability (turnover), quantity and quality of interaction between management and staff, responsiveness to employee concerns, opportunities for employee input and participation, interest in employee health and health promotion, and ability to schedule focus groups.

Focus groups consisting of 6-10 gerontological nursing assistant specialists (GNAs) were then conducted at each prospective site. The GNA designation is an elevated certification for certified nursing assistants (CNA), who are the mainstay of nursing home care-givers. Focus groups at each site consisted of two 90-minute meetings approximately 2 weeks apart, with the same group of participants. The purpose of these focus groups was two-fold: 1) to evaluate site readiness

and select 3 sites for the *PExHP* intervention, and 2) to identify key health concerns to inform future design team activities. Organizational readiness, employee interest, and the degree to which management understood the general health and safety concerns of workers were considered central to the selection process. The following are examples of topics discussed in focus groups: health concerns at work, opportunities for participation in decision-making within the organization, teamwork, qualities of an ideal nursing home, the importance of having quality time with residents, and work-life balance issues.

Focus group findings were resonant with survey data from a similar population of workers in an aggregate sample of nursing homes of the same host organization. The survey instrument combined the use of close-ended with open-ended questions to evaluate self-reported health status and to identify key health issues and organizational concerns. Open-ended questions focused on workplace and non-workplace factors that affect health, positively or negatively.

2. Formation of a Steering Committee

The formation of a multi-level steering committee was not feasible at each nursing home center because of the flatness of these organizations. Consequently, the center administrator and the director of nursing served in the role of an ad-hoc steering committee performing the roles listed above. As the *PExHP* design teams began their initial sessions, CPH-NEW researchers presented a brief overview on their activities at a meeting of supervisors and other center administrators, so that these ad-hoc steering committees and later the supervisors (unit managers at each center) would remain updated.

3. Formation and Training of P*ExHP* Design Teams

At the time of this conference, two of three intervention sites had established *PExHP* design teams which met every other week over the past three months. Team members were recruited from the previous focus groups and also from departments not represented in focus groups. At Site 1, the *PExHP* design team consisted of 6-8 gerontological nursing assistant (GNA) specialists. At Site 2, the *PExHP* design team consisted of 6-8 employees who represented CNAs, food services, housekeeping, and office staff.

During the first few meetings of the *PExHP* design teams at both sites, training was provided on group problem-solving and group decision-making techniques. For example, a set of meeting guidelines were put in place so that any new ideas or suggestions could receive full consideration, and training was provided for how to use a "decision wheel" for more organized decision making. In addition, employee health issues identified in focus groups and in a paper-based survey administered to all employees were prioritized. As an important component of organizational learning (Haims & Carayon, 1998), one goal in these initial meetings was to develop a "do-able" (i.e., easy) intervention that could help establish the roles of the *PExHP* design team and the steering committee within the overall program.

At Site 1, early meetings of the *PExHP* design team were lively with discussion about which single health issue to begin with. The group struggled with deciding the proper sequence for addressing nutrition, exercise, stress and communication/team work. This was captured in the words of one team member, “How can you eat healthy and exercise without first reducing stress; or vice versa?” The design team’s first intervention project was to improve quality of the foods

in the vending machines in the staff break room. Working on this project helped establish a working relationship between the *PExHP* design team and the steering committee (center administrator and director of nursing), and so it served to promote organizational learning, as discussed above. For a second intervention at Site 1, the design team chose to cultivate a small vegetable garden on the grounds of the nursing home. Although an unconventional choice, design team members felt that this activity would relieve stress, promote healthy eating, provide exercise, and build a spirit of team work and improved communication between nurses and CNAs. CPH-NEW researchers worked with the steering committee to secure donations from area merchants and in-kind consultation from local farm and garden experts. One obstacle that emerged was the fragile confidence of the *PExHP* design team members regarding successful completion of the project. During the period when CPH-NEW researchers were making community contacts, team members attending meetings would ask, "The garden is not going to happen, right? Nothing ever changes." This outlook apparently was rooted in a long history of workers making suggestions with no action following. CPH-NEW researchers assured team members that progress was being made, and set a date for building the garden. Design team members recruited the building department to construct forms for the raised beds, and the team and one CPH-NEW researcher then built and planted the beds. Although planted late in the New England growing season (July 28), the garden was successful – with cherry tomatoes, basil and kale growing quickly. It created a great deal of interest and pride among team members and other staff. Team members set up a schedule for checking the garden, watering, as well as how the harvest would be distributed. The team is discussing what tasks need to be done to prepare for the next growing season and to get more people involved. Early benefits of the gardening project include the following:

- Positive feelings of accomplishment and pride
- Established trust and optimism about future team projects
- Gained the support of the management
- Gardening provided health benefits—relaxation, physical activity, stretching
- Members of the *PExHP* design team learned about organic gardening methods
- One new team member was recruited through the garden activity
- Scheduling of gardening activities provides a reason to train team members on the ergonomics of active rest and optimal break scheduling.

At Site 2, nutrition, exercise, and the quality of life of residents were the top health issues selected by the *PExHP* design team. Similar to Site 1, improving vending machine food offerings was the first design team intervention at this site, and it was similarly successful in regard to obtaining healthier foods. CPH-NEW researchers took advantage of the health theme of and provided training materials on nutritional foods. Team members created and administered a survey for employees of the types of foods they wanted in the machines. They used the responses to negotiate with the vending company to stock machines with salads, fresh fruit, and sandwiches for a two-week trial. The team discussed how to notify other employees about the new food in the machines and to encourage them to use it. One person volunteered to write the flyer; another agreed to print it on her color printer; another agreed to post notices around the building. At the time of this presentation, a trial period is underway.

The second, more challenging intervention chosen by the design team at Site 2 was to create a walking path on the grounds of the nursing home to make it possible for employees, residents,

and family members to walk (some residents would need wheelchairs) outdoors despite the proximity of the nursing home to a busy highway. This project had been rejected in the past because of high cost. The *PExHP* design team requested a meeting with the center administrator and the building maintenance manager to propose that the project be reconsidered if a less costly alternative could be developed. The working relationship forged between the center administrator and *PExHP* team members during the vending machine intervention helped make this meeting possible. The design team was able to obtain budget and planning details from the original walking path design that had been rejected. Working from this previous design plan, the design team reconfigured the path to avoid costly lighting and non-critical construction. Team members wrote a proposal for the new design, complete with photographs and projected costs, which they will present to the center administrator for consideration. Some expected benefits of the proposed walking path are as follows:

- Provides a facility upgrade (important for marketing purposes)
- Combines relaxation/stress reduction with physical activity
- Accessible to both employees and residents, together or separate
- Satisfies popular and recommended health promotion activity—walking
- Provides opportunity to apply ergonomics of active rest and optimal break scheduling
- Lends itself to using pedometers to motivate participation, evaluate walking progress.

4. Support Roles for Mid-level Managers and Supervisors

It is crucial for program success that center managers and/or unit managers commit to providing resources for the *PExHP* design team. This includes making the necessary arrangements for the design team to meet and be trained, and to be flexible in work scheduling so that intervention activities are possible. The center administrator should reward and recognize the *PExHP* design team's efforts as well as the unit manager's support efforts.

Training for managers and mid-level supervisors should include an orientation to the program, including discussion of short and long-term goals, specific role descriptions and expectations by senior managers, functions of the steering committee, and anticipated activities of the *PExHP* design team. Managers and mid-level supervisors will need to receive regular communications regarding any steering committee actions and new activities of *PExHP* design team.

Remaining Challenges

Although early *PExHP* design activities at Sites 1 and 2 appear to be on a good trajectory, a number of challenges still remain before long-term sustainability of these programs will be achieved:

1. Fostering positive management/design team relationships. Communication between the *PExHP* design teams and center management was not ideal. For example, the center administrator could not always provide a timely response to the design team on budget questions, and teams were not aware of the center administrator's "crunch times" when she was not in a position to respond. This can be considered a drawback to not having a formal steering committee for communication and marshalling needed resources to support the design team. Perhaps some formal arrangement will need to be established that links *PExHP* design team activities with other center priorities, and alternative

communication pathways will need to be developed. A related issue is the logistical difficulty in organizing meetings of unit managers, for communication or to work with them on quality of supervision.

2. Building Sustainable Leadership. Early in the design team's development, CPH-NEW researchers assumed a substantial amount of responsibility leading team meetings, doing background research and leg work for the interventions, and communicating with the center administrator to obtain necessary permissions and resources. A transition is planned whereby design team members will be expected to take a more active leadership role while CPH-NEW researchers transition to more consultation and support roles.
3. Providing ongoing training and education. Site managers and design teams will need ongoing training in several domains to maintain enthusiasm, build skills, and assure intervention quality and commitment to the program. Example training needs are program planning and evaluation methods, wellness best practices, use of community resources, and macroergonomics for organizational change (Robertson, 2002).
4. Developing short-term and long-term evaluation measures. CPH-NEW researchers and teams need to work together to assure that the necessary data is collected over multiple years to enable employee health outcome evaluations. Management will need to verify program effectiveness and impact (e.g., lower absenteeism, lower turnover, higher morale, quality of care, etc.) to maintain their enthusiasm and commitment to the program. Also, measures of the *PExHP design* process need to be logged which can allow the host organization to transfer lessons learned to other nursing home centers in the organization.
5. Training for *PExHP* design teams only. Design teams will need ongoing education to expand their skills in teamwork, project management, process and outcome evaluation methods, root cause analysis, membership recruitment, building a business case for wellness activities, and on the relationship between work organization, ergonomics and other occupational safety and health topics, publicity, and state of the art wellness programs in health care.

Conclusions

The scientific and conceptual basis for a more participatory approach to health protection and health promotion in the workplace was presented in which employees take a more active role and become stakeholders in workplace interventions. This bottom-up approach uses participatory ergonomics to engage employee teams in the design of workplace interventions to address salient health concerns they have identified. These small design teams then test and refine their proposed interventions in an iterative manner, in keeping with good ergonomic practice. Top-down management support for the program is required. As members throughout the organization begin to assume a proactive role in the management of employee health, organizational learning must take place for the overall approach to be successful. Examples of organizational learning during the start-up phase of an ongoing field study were provided to clarify implementation methods and the nature of employee-led interventions at long term care facilities. Early results at two field sites are promising, with employees already taking an active role in planning and implementing workplace health protection and health promotion activities. One of the remaining research challenges is to find additional ways of guiding and supporting these programs so they become self sustaining.

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