Promoting the Health of People with Disabilities:
Protocols for Preventive Interventions

Center for Disability Policy and Research
University of Washington
Seattle, Washington

October 1996
Acknowledgements:

Promoting the Health of People with Disabilities: Protocols for Preventive Interventions is a summary of findings from Work Groups on Preventions for People with Disabilities convened by the University of Washington Center for Disability Policy and Research to develop clinical and community-based health promotion interventions for people with disabilities.

This report summarizes the first phase of a five-year University of Washington research project to investigate health promotion for people with disabilities. The work is supported by the National Center for Chronic Disease Prevention and Health Promotion, U.S. Centers for Disease Control and Prevention through a grant to the Northwest Prevention Effectiveness Center in the School of Public Health and Community Medicine.

The guidelines as presented in this report are designed to be useful to individuals, advocates, researchers and health policy makers, as well as clinicians. More detailed information on the protocols, including references, is available by contacting the Center for Disability Policy and Research, 146 North Canal Street, Suite 313, Seattle, WA 98103, cdpr@u.washington.edu, (206)685-7260, fax (206) 616-3135.

Project Staff

Donald L. Patrick
PhD, MSPH, Principal Investigator
Donald@u.washington.edu, (206)685-7252/(206)616-2981

Mary Richardson
PhD, MHA, Co-Investigator

Helene Starks
MPH, Project Manager

Darian Shaw
Project Administrator

Adrienne Hidy
BA, Research Assistant

Nancy Cooper
BA, Research Assistant

Mary Rose
BA Research Assistant
Introduction and Overview

Health system reform efforts across the nation emphasize prevention to reduce health care costs and improve quality of life. For all consumers of health care services, realistic prevention strategies require that individuals take greater responsibility for their own health and that they make effective use of personal preventive services in primary care.

Traditional concepts of prevention emphasize prevention of diseases and impairments that lead to disability. But for people who already have disabilities — whether those born with impairments, those injured during their lives, or those who incur disabilities with chronic health conditions — prevention strategies must be suitably inclusive and sensitive, incorporating both preventive health services and community-based approaches. They must accommodate the complexities of disabling conditions while not neglecting management of overall health. They must target the individual's entire environment, personal and social, including the promotion of opportunity.

In 1989, the Center for Chronic Disease and Disability Prevention, U.S. Centers for Disease Control, convened the U.S. Preventive Services Task Force, which over four years reviewed 169 clinical interventions to prevent 60 common illnesses and conditions. Its product, Guide to Clinical Preventive Services, marked the beginning of a new emphasis on primary prevention of premature death and disability. At the time, there was no comparable review of interventions to address the disease prevention needs of people with disabilities, nor a listing of interventions to prevent secondary conditions resulting from a primary disability. A literature review conducted by the University of Washington Center for Disability Policy and Research (CDPR) revealed that few such prevention interventions had been proposed for people with disabilities.

In 1992, The Centers for Disease Control provided CDPR with funding to develop preventive service protocols for disabling conditions. CDPR convened three task forces to design health promotion and disease prevention guidelines for people with developmental disabilities, injury-related disabilities, and disabilities associated with chronic disease and aging. To assist this work, CDPR
developed a conceptual model integrating the individual's total environment, the life course, the disabling process, opportunity, and quality of life.

Task force participants were drawn from the local research and clinical community associated with the University of Washington. Over the course of a year, the task forces of composed of eight work groups, used this model to develop two types of preventive interventions protocols — to prevent the disabling process and to promote opportunity — that could occur in either clinical or community settings. Consistent with the broad concept of disability as defined in the 1989 Americans with Disabilities Act*, the nine sets of guidelines take into account both the context of an individual's condition and the societal response to disability.

**The Conceptual Model**

People with disabilities rarely receive the range of preventive health services they need or want. Preventive services may be overlooked in clinical settings, because of the focus on treatment of the disabling condition. Public health prevention services may not reach people with disabilities, and they tend to emphasize primary prevention of disabilities rather than preventive efforts for people with existing disabilities. Yet people with disabilities are susceptible to other chronic conditions to the same or greater degree than the general population, and they are also at risk of secondary conditions that may result from their primary impairment.

To guide the design and evaluation of interventions that meet all the needs of people with disabilities, CDPR undertook to create a model for disability prevention that would occur in the context of the entire life course of people with disabilities.

CDPR began by reviewing previous models of disability developed by the World Health Organization and the Institute of Medicine, as well as working papers compiled by the U.S. Centers for Disease Control's Disability Prevention Program. CDPR also examined current definitions of prevention as primary, secondary or tertiary.
• For people with disabilities, primary prevention seeks to reduce the risk of further disablement that might be caused by injury or chronic conditions. Primary prevention includes all measures to eliminate risk factors for additional chronic conditions through preventive services and modifications of the social and physical environment. Examples are prevention of substance abuse, exercise, smoking cessation, and hypertension screening.

• Secondary prevention for people with disabilities includes all measures to limit or reverse the impact of the impairment and the development of secondary conditions and their multiple impacts on functional limitations or activity restrictions. Examples are prevention of chronic pain, depression, pressure ulcers, and foot problems.

• Tertiary prevention involves all activities designed to prevent the disadvantage associated with impairments and disabilities and to promote opportunity for equality, economic self-sufficiency, full participation, and independent living. Examples are return to work, transition to school, and community acceptance and integration.

These definitions and principles were incorporated into the following conceptual model, which includes four major "planes of experience" that together describe the context of life for a person with disability: the total environment; the disabling process; opportunity; and quality of life. Within each plane and across the four planes, opportunities for intervention occur. The model depicts these points of intervention with arrows. The disabling process may be halted or reversed, and promotion of opportunity occur, at these interaction points.
The model's planes of experience emphasize that improving health-related quality of life for people with disabilities entails not only alteration of physical processes but also changes in individual behavior, the social environment, and health care.

The first plane of the model represents the individual's total environment (biological, demographic or life course, social and physical), including cultural and economic influences, and individual behavior. The second plane shows the disabling process and describes the progression from the disease or injury to disability. The third plane represents opportunity, or the interaction between the total environment of the individual and the disabling process. The fourth major plane, at the right of the other three, depicts quality of life, the final outcome of environmental risk factors, the individual's life course, the disabling process, and opportunity.

Enhancing quality of life is the ultimate goal of health promotion and disease prevention.
The Work Groups

The model provides a framework with which to develop prevention strategies for people with disabilities. Effective interventions must be tailored to the specific needs of different groups of people, and they must be incorporated into clinical practice and community health promotion efforts.

To achieve this next step, CDPR organized three expert task forces who worked in the broad categories of development disabilities, injury-related disabilities, and chronic conditions. The 61 members were clinicians, professionals, researchers, and consumers. They proposed more than 70 potential topics for prevention strategies. Eight work groups assembled and, by the fall of 1993, they developed 13 sets of guidelines:

- The two developmental disabilities work groups focused on mental retardation and neural tube defects.
- The three injuries work groups developed prevention guidelines for persons with burn injuries, head injury, and spinal cord injury.
- The three chronic conditions work groups developed guidelines for people with diabetes-related and low back pain disability.

Based on its conceptual model, CDPR created a common format that could be used for each work group to describe its prevention guidelines. In this report, we present digests of the 13 sets of prevention guidelines for people with disabilities. Each digest includes:

- a summary of the workgroup's recommendation for each guideline, its location, and participants;
- a discussion of the problem, including information on prevalence, history, and the results of some recent studies; and
a discussion of intervention characteristics, including individuals who will be involved, specific activities in sequence, and measurable outcomes.
Task Forces and Work Groups

Chronic Conditions
Mary Durham, PhD, Group Health Cooperative, co-chair
Edward Wagner, MD MPH, Group Health Cooperative, co-chair
Adrienne, Hidy, administrative support

Depression
Dan Clark, PhD, Group Health Cooperative
Chris Dagadakis, MD, MPH, UW Department of Psychiatry
Mary Durham, PhD, Group Health Cooperative
Susan Kinne, PhD, Fred Hutchinson Cancer Research Center
Greg Simon, MD Group Health Cooperative
Mark Sullivan, MD PhD, UW Department of Psychiatry
Linda Teri, PhD, UW Department of Psychiatry
Michael Von Korff, ScD, Group Health Cooperative, group leader

Fred Connell, MD, UW Maternal and Child Health Program
Brad Galer, MD, Pain Clinic
Marguerite McNeely, MD, VA Medical Clinic
Bruce Psaty, MD, PhD, Cardiovascular Health Research Unit
Gayle Reiber, PhD, VA Medical Center
Carla Shaw, UW Department of Epidemiology
Michael Von Korff, ScD, Group Health Cooperative
Edward Wagner, MD, MPH, Group Health Cooperative, group leader

Michele Battie, PhD, UW Department of Orthopaedics
Joe Castorina, Department of Health, State of Washington
Richard Deyo, MD, MPH, UW Department of Health Services, group leader
Bill Fordyce, PhD, UW Department of Rehabilitation Medicine
Gary Franklin, MD, UW Department of Environmental Health
Deborah Fulton-Kehoe, UW Department of Environmental Health
John Loeser, MD, UW Department of Neurological Surgery
James Robinson, MD, UW Department of Rehabilitation Medicine
John Shurvey, BA
Judy Turner, PhD, UW Department of Psychiatry
Lincoln Weaver, Office of Chronic Disease & Injury Prevention

Developmental Disabilities
Curt Bennett, Center on Human Development and Disability, chair
Mary Rose, administrative support

Mental Retardation
Curt Bennett, Center on Human Development and Disability, group leader
Donna Burgess, PhD, Center on Human Development and Disability
Irv Emanuel, MD, UW Department of Maternal & Child Health
Forrest Faison, MD, Center on Human Development and Disability
Anne Leavitt, MD, Center on Human Development and Disability
Nancy Meltzer, King County ARC
Peggy West, PhD, US Public Health Service

Shirley Beresford, PhD, UW Department of Epidemiology
Pat Hayden, MD Children’s Hospital, group leader
Ross Hays, MD, UW Department of Rehabilitation Medicine
John Loeser, MD, UW Department of Neurological Surgery
David Shurtleff, MD, UW Department of Pediatrics
Maurine Swanson, RN, UW Department of Pediatrics
Phil Terry, MHA, Department of Family Medicine

Injury Related
Kenneth Jaffe, MD, UW Department of Rehabilitation Medicine
Nancy Cooper, administrative support

Debbie Beckmeyer, RT, Harborview Medical Center - Recreation Therapy
Verna Cain, RN, Harborview Medical Center - Burn Center
Beth Costa, OTR, Harborview Medical Center - Burn Center
Loren Engrav, MD, Harborview Medical Center - Department Of Surgery, group leader
Debbie Groden, PT, Harborview Medical Center - Physical Therapy
Beth Helvig, RN, Harborview Medical Center
Springer Hunt, MSW, Harborview Medical Center
Roberta Mann, MD, Harborview Medical Center
Joe Militello, Harborview Medical Center
Donna Nakamura, OTR, Harborview Medical Center
David Patterson, PhD, Harborview Medical Center –Rehabilitative Medicine
Cindy Peterson, RN, Harborview Medical Center
J.T. Ptacek, PhD, Harborview Medical Center

Charles Bombardier, UW Department of Rehabilitative Medicine
Diana Cardenas, UW Department of Rehabilitative Medicine
Margaret Hammond, UW Department Rehabilitation Medicine, group leader
James Little, UW Department of Rehabilitative Medicine
Teresa Massaglì, UW Department of Rehabilitation Medicine

Kathleen Bell, MD, UW Department of Rehabilitative Medicine
Charles Bombardier, PhD, UW Department of Rehabilitative Medicine
Peter Esselman, UW Department of Rehabilitation Medicine, group leader
Kurt Johnson, PhD, UW Department of Rehabilitation Medicine
Frederick Rivara, MD, UW Department of Pediatrics
Jay Uomoto, PhD, UW Department of Rehabilitation Medicine
Protocols for People with Developmental Disabilities

1) Preventing Substance Abuse Among People with Mental Retardation

Summary of Recommendation
Implement a drug education program, tailored for people with mental retardation (MR) and their families. The program will consist of a series of informational, counseling and skill-building sessions, offered through local Parks and Recreation Departments, presented in a manner appropriate for people with cognitive impairments. The skill-based curriculum will develop social competency in making decisions about drug use, and it will develop people's social interaction skills, decision-making abilities, and assertiveness. For the families of people with MR, the programs will provide information and opportunities to discuss substance use and abuse with other families and counseling staff.

Locus of Intervention: Community (Parks and Recreation special programs)

Participants: People with mental retardation, families, caregivers, Parks and Recreation staff

Discussion of the Problem
There has been little research into the prevalence of substance abuse among people with MR, but recent studies suggest that alcohol use and abuse among people with MR is similar to that of the general population. Surveys of adults with MR show that from 28% to 52% had used drugs. Although drug abuse in this population spans the life course, one survey identified a high concentration of younger adults (ages 18-35) as alcohol abusers. Men and women with MR appear to be at equal risk for substance abuse. A survey conducted by the Association for Retarded Citizens (ARC) showed that people with MR probably drink because they are bored or because they lack opportunities for socialization. Drugs of choice include alcohol, marijuana, amphetamines, cocaine, inhalants, and PCP.

Substance abuse complicates the primary disability among people with MR. People with MR are more likely than those in the general population to take prescribed medications for seizure disorders or mental health problems, and combining alcohol with any of these medications (Thorazine, Mellaril, Triavil, Phenobarbital and Dilantin) is not recommended. People with MR who are substance abusers are more likely than those who do not abuse substances to have been admitted to a psychiatric unit of a general hospital or to a state psychiatric hospital. People with MR also abuse drugs at lower intake levels than does the population as a whole.
For people with MR, substance abuse also presents a barrier to full opportunity and participation in society. Use of alcohol and drugs may temporarily relieve problems of social acceptance and frustration for people with MR, but it may also cause difficulties at work, in relationships with friends and family, and with the law enforcement system. Substance abuse among people with MR has been linked to a range of job-related problems, including absenteeism, tardiness, poor relations with co-workers, and unreliability. Family and social problems that occur frequently for people with MR who abuse substances include arguments and alienation from family, loss of friends, and stealing money to purchase drugs or alcohol. One survey of alcohol treatment programs showed that more than half of their clients with MR had been arrested while under the influence of alcohol.

The shortcomings of treatment methods in the general population are compounded for people with MR due to inaccessibility to treatment programs or inappropriate presentation of information about alcohol and other drugs and substance abuse.

**Intervention Characteristics**

The Americans with Disabilities Act mandates greater independence for people with MR; supporting this goal should be greater access to information, prevention education, and treatment interventions. This intervention is a comprehensive prevention strategy, designed to strengthen the individual's ability to cope with his or her social environment — in this case, the influences that encourage use of alcohol and other drugs. Coping skills include general problem-solving and decision-making skills; cognitive resistance skills to combat interpersonal and media influences to use substances; skills to increase self-esteem; ways to cope with anxiety or stress other than using substances; and general social and assertiveness skills. These skills are developed through a combination of instruction, demonstration, role-playing, and feedback.

People with MR and their families will be invited to participate in a series of informational counseling and skill-building sessions through local Parks and Recreation Departments. The programs will include a skill-building curriculum to develop social competency in making decisions about drug use, and courses to develop people's social interaction skills, decision-making abilities and assertiveness. These classes will also assist participants with decision-making based on current information and teach them how to act on those decisions in social situations. They will incorporate intensive role-playing and other interactive exercises to allow individuals to "try on" different situations to reinforce newly acquired information and develop skills. For families of people with MR, the programs will provide information and opportunities to discuss substance abuse with other families and counseling staff. The programs will enable parents and siblings to help their family members with MR understand substance use and make decisions about abstinence.

Measurable outcomes for this intervention are learned skills — including social competency interacting with others around alcohol and other drugs, making
decisions about substance use, and carrying out those decisions in daily encounters.

2) Promoting Social Continence Among Adolescents with Neural Tube Defects

Summary of Recommendation
Implement a package of interventions correlated with individuals' progress toward independence in toileting, including motivational interviewing, tailored to the individual according to compliance with bowel and bladder management programs. Develop a newsletter for people with neural tube defects, teachers, school aides, families, and school administrators. The newsletter will address contingency planning for accidents and skill-building for the individual, and issues of acceptance and understanding in the classroom. Develop sensitivity training for schools and a buddy system for younger children.

Locus of Intervention: Community (school setting)

Participants: People with neural tube defects, their families, school psychologists, teachers and other school staff

Discussion of the Problem
Most people born with neural tube defects have some degree of impairment in their bowel and bladder functioning. Research conducted in the U.S. and other countries suggests that nearly all children born with neural tube defects who survive into the school years need to develop appropriate bowel and bladder management routines, including ways to adapt to new situations and "accidents." Many adolescents born with neural tube defects experience a lack of social continence — embarrassment from soiling and odor due to lack of management of impaired bowel and bladder functioning — that may result in limited opportunity, participation, and independence.

Lack of social continence can have serious consequences for the health of an individual. If a routine for managing fecal continence is not established by adolescence, the individual, may suffer obstipation, megacolon, and overflow diarrhea. Large quantities of impacted feces may require regular enemas and effort on the part of caregivers and family members as well as the individual for a bowel restructuring program. A lack of consistent bladder management also has serious, further disabling consequences for the adolescent. Infections may occur more frequently, leading to risk of kidney infection, and ultimately, renal failure. Conditions affecting the ability to achieve social continence include variation in bladder dynamics and sphincter control, degree of congenital impairment, acquired infections, surgeries, physical maturation, motor skill development, physiological barriers such as orthopedic limitations and intercurrent illnesses,
and the level of support by family members, caregivers, and others. Social continence at all stages is not static. Individuals face risks for losing their daily control because of neurologic degeneration and orthopedic problems including arthritis, infections, and other illnesses.

People born with neural tube defects who have experienced incontinence have not gained equality in education or employment opportunities, and research shows that incontinence is also a barrier to achieving full participation (or social integration) and independent living. Emotional difficulties associated with incontinence may also cause impaired self care in the realm of bowel and bladder management and contribute to low self-image.

**Intervention Characteristics**

This intervention operates on both the individual and the environment to change individual behaviors around bowel and bladder management. It will be conducted using an intervention group and a comparison group of adolescents, their families, schools. The components are motivational interviewing to confront denial, conducted by school psychologists; a newsletter for people with neural tube defects, teachers, school aides, families, and school administrators, that addresses contingency planning for accidents, skill building for the individual, and issues of acceptance and understanding in the classroom; sensitivity training for schools and a buddy system for children; and "independence camps" for children who are maintaining their independence in toileting.

Adolescents with neural tube defects will participate in all of the individual intervention strategies. Intervention and comparison groups will be assessed at baseline, short-term, and long-term follow-up intervals. The primary outcomes of the study are the children’s level of continence, their self-image, and their progress to achieving behavior change. This program will also develop tools to measure level of social continence (including the number of accidents, the individual's physical and psychological reaction, the individual's level of embarrassment, and contingency planning) and change in both bowel and bladder management and accident contingency planning.

The primary outcomes for this intervention will be children's level of social continence, their self-image (using the Piers-Harris Children’s Self-Concept Scale) and their progress in changing behavior.

**Protocols for People with Injuries**

3) Preventing Social Isolation In Persons with Burn Injuries

**Summary of Recommendation**
Implement a school, work, and community re-entry program for burn-injured survivors that will educate and desensitize community members and burn survivors through on-site visits, phone contacts, written and video materials from health care professionals, and media coverage. Disseminate information about burn injuries and rehabilitation, including long-term, physical and emotional effects. Give burn survivors and community members an opportunity to discuss special needs, abilities, appearance, and concerns of the burn survivor.

**Locus of Intervention:** Community (school, work, and community settings)

**Participants:** Burn-injured individuals, their families, peers, community-based clinicians, case workers, employers, school employees, community members, and local news media

**Discussion of the Problem**
A number of barriers disrupt the transition of burn survivors to vocational and community reentry. These include psycho-social barriers related to the individual's self-image and community reaction, functional limitations in physical capacities, and environmental barriers.

One of the most stressful periods in the recovery of burn survivors is the period between hospital discharge and community reintegration. Hospital burn unit staff are usually emotionally conditioned in their response to a severe burn injury and are trained to respond to the survivor's physical and emotional needs with empathy. Such is not the case when individuals with burns return to their communities. As sensitive as many of their family, friends, and acquaintances may be, they often demonstrate an unpredictable array of interpersonal responses. All burn-injured persons are affected by the problem of psychosocial adjustment and acceptance, but informal observation suggests that it is most acute for children and adolescents.

Burn injuries can lead to a multitude of secondary conditions including hypertrophic scarring, joint contractures, functional impairments, and cosmetic deformities, all of which exacerbate the disabling process. The extent of these conditions varies among burn survivors, but they can ultimately result in severe activity restrictions either due to functional limitations or negative social responses.

Opportunity for burn survivors is complicated by financial issues. Health care benefits (through private insurance, Medicare and Medicaid) may be inconsistent. State and regional benefits are insufficient for maximizing vocational potential in burn survivors because they often cannot accommodate the need for early intervention, continuity of care, and long-term recovery. Cooperation among public agencies providing and financing services — essential to providing extensive vocational rehabilitation and consistent benefits — has proven elusive.

**Intervention Characteristics**
Harborview Medical Center* has developed a successful protocol for school re-entry of burn survivors that can be easily translated into a work and community re-entry model. This formal program of school re-entry for children and youth includes instruction to prepare teachers, staff and peers of school-age burn survivors to achieve smooth reintegration into the classroom. On-site visits by health professionals and video presentations are widely used to explain the consequences of burns, including the specific limitations likely to be encountered and the extensive rehabilitation required. Participants have the opportunity to discuss fears, feelings, and strategies to achieve the transition back to school.

The work-site re-entry protocol will provide survivors who have sustained physical disfigurement a voluntary work site re-entry visit to prepare employers and co-workers for their return to work. A burn unit therapeutic recreational specialist or rehabilitation counselor may participate. Planning for return-to-work will be coordinated among the physician, patient, therapist, rehabilitation counselor, vocational counselor, therapeutic recreation specialist, and employer. The visit will incorporate a 20-30-minute presentation emphasizing abilities and normalcy within the work environment and including a brief description of the hospital course and current rehabilitation status of the burned individual, a discussion of the individual's special needs and current abilities, discussion of changes in appearance and functional ability, explanation of any necessary modifications and accommodations, and identification of key contact people. For survivors returning to rural communities (more than 50 miles from burn centers), the presentation will be made by videotape, sent to the employer and viewed by targeted groups at the worksite.

The community re-entry protocol will also have a "local" and a "remote" component. Burn survivors will identify the reintegration scenarios that cause them the most anxiety — including churches, social clubs, or even family/home situations. Once identified, a rehabilitation counselor will provide an educational program to facilitate smooth re-entry. They may contact key members of the survivor’s community setting and provide basic information to facilitate social transition, either through face-to-face interviews, phone contacts, or videotapes.

Burn centers may help guide local news media coverage about burn survivors soon after their trauma. When conducted in an ethical and respectful manner, stories on burn survivors have been shown to provide therapeutic benefits to survivors as well as to help desensitize the community.

The desired outcomes of this intervention are social integration and peer acceptance, with the successful return to school, work, and community life.

4) Prevention of Secondary Conditions Through Community-based Rehabilitation In Persons with Burn Injuries
Summary of Recommendation
Conduct a systematic program of rehabilitation care by teaching all burn survivors requiring post-hospitalization therapy how to use a personalized care manual to improve consistency and thoroughness of discharge instruction and continuity of care. Copies of this manual should also be distributed to community-based care professionals providing follow-up services. In addition, provide phone consultation by the regional Burn Center for problem-solving and reassurance.

Locus of Intervention: Clinical and community services (primary care and home/school/work settings)

Participants: Burn-injured persons, family, peers, clinicians, insurers, educators, and employers.

Discussion of the Problem
People surviving burn injury are at risk of developing functional limitations and cosmetic deformity resulting in loss of well-being and time off work and school. Factors affecting recovery from burns include magnitude of the injury, level of tissue involvement, age, as well as the person's ability to understand and cooperate with treatment and his or her family's participation. Children are at greater risk for longer recovery because they tend to scar more, their scars take longer to mature, and they may have limited understanding and ability to cooperate with treatment. Rehabilitation after a burn injury is particularly difficult for adolescents because scarring tends to be worse than for other age groups and willingness to comply with treatment is often less.

Patients who live near burn centers are generally most likely to comply with the complex requirements of burn rehabilitation. Many burn survivors, however, live in rural settings or have difficulty adhering to rehabilitation programs for a variety of reasons. When the rehabilitation process is disrupted or otherwise compromised, the disabling process worsens. Burn injuries cause physiological changes in the skin resulting in scars that decrease range of motion and lead to the development of functional limitations. Risk factors for these limitations include: the magnitude of the injury; age; whether burn survivors require and receive surgery; scar formation; contracture formation; inability or unwillingness to comply with treatment; decreased ability to learn due to stress, pain, medication, and social environment; inadequate education and/or family support; difficulties obtaining appropriate follow-up care (because distance and lack of financial means); limitations of the health care providers (i.e., level of training and experience); and inadequate supplies.

The experience of the University of Washington Burn Center in Seattle indicates that rehabilitation for burn survivors is problematic for patients who live outside of the metropolitan area. Rural residents are often hampered by financial or physical restrictions that make follow-up appointments difficult to keep. One solution has been to intensify in-hospital teaching as much as possible, but the
stress of hospitalization, acute burn care and pain medication make the hospital setting a poor learning environment and inadequate for assuring appropriate long-term care.

Educational programs that prepare physicians, nurses, occupational and physical therapists, and vocational rehabilitation counselors have inconsistent standards regarding exposure to burn injuries. Burn survivors frequently return to the acute care clinic with stories suggesting that community resource personnel do not know how to interpret wound appearance, how aggressively to provide therapy, or how to adapt treatment to physiological changes. Improved patient education and efforts to provide community resource professionals with updated information about burn care should substantially improve the outcomes of burn survivors.

Intervention Characteristics
A multi-disciplinary, self-care system is the most practical method to encourage burn survivors to gain autonomy in their lives to enable them to manage as much of their own burn care as possible. With this goal in sight, all persons hospitalized for burn care will receive a loose-leafed notebook at the time of admission that will be kept by the burn survivor throughout hospitalization. As rehabilitation and other post-discharge needs are identified by the individual and his or her caregivers, this information will be added to the discharge notebook. The notebook will be used as a reference throughout the burn survivor's stay in the acute care unit, and it will accompany the survivor to dressing changes and physical and occupation therapy sessions.

To serve as a reference for future referrals, all agencies and health care professionals providing follow-up will also receive a notebook containing specific protocols required by the individual burn survivor and for burn care in general. In addition, all instructional sheets prepared for the patient will include a contact telephone number that will be activated 24 hours a day; the number will reach a burn nurse who may refer the caller, if necessary, to a burn physician or therapist. All burn survivors return at least once for an outpatient clinic visit after discharge. At this time, burn clinic nurses, therapists, physicians and others will re-examine compliance and understanding of self-care principles as needed. Patient satisfaction will be assessed using questionnaires administered during follow-up visits or through the mail.

The desired outcomes will be more consistent regional standards of care; increased compliance with recommended therapy; reduced need for reconstructive surgery; a broader-based referral network of trained therapists; improved functional outcome; and consumer satisfaction.

5) Prevention of Hypertrophic Scarring with Pressure Garments In Persons with Burn Injuries
Summary of Recommendation
Conduct a clinical trial to determine the efficacy of pressure garment therapy in preventing hypertrophic scarring.

Locus of Intervention: Clinical services

Participants: All burn survivors over age 17, their families, health care providers, and peers

Discussion of the Problem
About 26% of all burn survivors develop hypertrophic scarring, which may lead to joint contractures, functional impairments, and cosmetic deformities. Pressure therapy has been adopted as the standard of care to prevent hypertrophic scarring, but its efficacy is unproved. Pressure therapy is complex, problematic, and expensive. Therefore, its use cannot be justified solely on the basis of case reports, retrospective studies, and anecdotal data.

Prescription of pressure garments requires exacting measurements with numerous fittings and periodic reordering of new suits as the edema of the acute wound resolves and the patient grows. The cost can be excessive. For a combined burn of the chest, arms, and face, a one-year supply of garments costs roughly $2,700. Pressure garments must be worn for 12 hours per day, every day, for about 12 months after injury. They are hot, itchy, and unbecoming, and they may promote shear injury to formerly healed areas, may require general anesthesia for proper fittings of certain areas (such as the face) and may be ineffective in areas where adequate pressure is difficult to achieve (chest, abdomen, buttocks). Researchers have noted blistering, abrasion, and ulceration of healing wounds as a result of wearing pressure garments.

Functional limitations resulting from burn injuries may impede a person's opportunity. Cosmetic deformities may lead to social rejection and decreased job opportunities, which in turn decrease economic self-sufficiency, equity of opportunity, full participation, social integration, and independent living.

Intervention Characteristics
Burn survivors may enter the study any time after their burn wound, skin graft, or donor site is healed. Up to six study sites of 2 X 2 inches per patient will be selected in areas where the scar appears homogeneous. Each study site will be divided into two equal areas (proximal and distal). A pressure garment will be applied according to a randomization protocol— half the burn survivors will receive pressure to the proximal part and half to the distal part. Burn survivors will be instructed to wear the garments 23 hours per day, removing them only for bathing. Scars will be evaluated by examiners who are unaware of the randomization assignment. The initial evaluation will be made at the time of pressure application and will include photographs and assessments by three different examiners using the University of Washington Burn Scar Assessment Tool. Evaluations will be repeated every 3 months until the scar is mature (soft
and pliable, erythema resolved), at which time the last evaluation will be made and pressure therapy discontinued.

Burn survivors must comply with pressure therapy — not an easy task. Physicians and therapists will prescribe, measure, and fit the garments, and they will provide advice and support to burn survivors and conduct the burn scar assessments and examinations. Family members, peers, nurses, and teachers will provide support and encouragement.

Primary outcome measures for this study will be to show significant differences (more or less hypertrophic scarring or no differences) between the pressure-treated and non-pressure-treated wound sites.

6) Preventing Pressure Ulcers
Among People with Spinal Cord Injury

Summary of Recommendation
Screen periodically for pressure ulcer risk factors and provide consumer education to support preventive behaviors for all persons with spinal cord injury.

Locus of Intervention: Clinical services (primary care or home setting)

Participants: Spinal cord injured individuals and health care professionals

Discussion of the Problem
Persons with spinal cord injury are at a higher risk for developing pressure ulcers than the general population because of their long-term exposure to pressure forces on the skin while in wheelchairs and in bed. Pressure ulcers, if not recognized early, can cause infection and permanent tissue damage and result in temporary or permanent restriction of activity. The cornerstone of treatment requires complete relief of pressure to promote healing, which may require surgery and/or weeks to months of activity restriction.

Most risk factors for developing pressure ulcers are modifiable. Adverse risk factors include: inactivity and immobility; pressure; friction; shear forces (especially over bone prominences); higher level of injury; inadequate pressure relief behavior; exposure to moisture (from incontinence, perspiration, or wound drainage); musculoskeletal abnormalities (such as spinal deformities and altered posture); associated medical conditions (diabetes, peripheral vascular disease, severe spasticity); dependent edema; smoking; improper clothing; inadequate diet; lowered mental awareness and/or cognitive impairment; depression and/or other psychiatric disorders; substance abuse; and a lack of natural incentives to maintain healthy skin (for work, school, leisure activities).
Factors known to maintain skin integrity include: comprehensive education for persons with spinal cord injury, family, health care providers, friends, and teachers about prevention; maintaining clean and dry skin; daily skin inspections; recognizing early signs of pressure ulcers and seeking appropriate medical attention when necessary; conducting systematic pressure releases every 15 minutes; minimizing exposure of the skin to friction, shear, and pressure forces when in bed and chairs and during skin cleaning; correct positioning for proper postural alignment; distribution of weight, balance, stability, and pressure relief; avoiding massage over bony prominences; using protective films, dressing, or padding if poor tensile strength of skin; using pressure-reducing cushions; maintaining good nutrition and avoiding obesity; and facilitating and pursuing access to work, leisure, education, and occupational activities.

Pressure ulcers occur with high frequency, high cost, and high risk for permanent tissue loss in persons with spinal cord injuries. They present barriers to work, lost income, decreased standard of living, decreased access to health care, increased service use and costs, decreased social activity, and greater stress on family relationships.

**Intervention Characteristics**

Pressure ulcers are preventable, but prevention is a life-long endeavor. Health care providers must work in collaboration with persons with spinal cord injuries to emphasize preventive behaviors, education, and vigilant monitoring. Primary care practitioners, who are ideally positioned to fulfill this role, typically lack the technical knowledge or experience to prevent pressure ulcers in this population. This intervention calls for specialists from a spinal cord injury center to teach primary care clinicians how to use a screening checklist incorporating specialized aspects of care regarding the details, interdependence, and subtleties of prevention. The checklist will address issues including altered posture, spasticity, interface pressures of cushions, location of wheelchair footplates, interaction between a particular cushion and a person’s function, and declining function with age. The screening checklist will provide a tool for the primary care provider or community home health nurse to screen for risk factors and observe preventive behaviors.

The checklist will also act as an educational tool to teach primary care clinicians about specific measures in caring for and supporting the self-care of patients with spinal cord injury or disease. Primary care clinicians will be recruited and educated about the unique aspects of pressure ulcer prevention in this population. They will be asked to implement and regularly use the checklist to review findings with the person with spinal cord injury. They will recommend preventive actions and monitor compliance.

Desired outcomes are a decreased occurrence and/or reduction in severity of pressure ulcers among persons with spinal cord injury and disease, and an increased knowledge of pressure ulcer prevention for both clinicians and persons with spinal cord injury.
7) Preventing Alcohol Abuse Following Alcohol-related Traumatic Brain Injury In Acute Care

Summary of Recommendation
Implement alcohol screening and counseling within 36 hours of admission for alcohol-related traumatic brain injury. Specifically, use motivational enhancement therapy to target issues relevant to the pre-contemplation and contemplation stages of behavior change by providing visual and verbal feedback about the impact of alcohol on the person's life. Additionally, provide telephone contacts with survivors and their families to facilitate follow-through and connections with existing community resources.

Locus of Intervention: Clinical services (acute care setting)

Participants: Traumatic brain-injured patients, family, and health care professionals

Discussion of the Problem
Head injuries and associated traumatic brain injury represent a major public health concern in the United States, affecting an estimated 4% of the U.S. population annually. A pattern of chronic alcohol abuse is closely related to head trauma. As many as two-thirds of head trauma patients are estimated to have a detectable level of alcohol at admission, and at least a third are estimated to be intoxicated. Additionally, the National Head Injury Foundation found that about 40% of patients in post-acute rehabilitation had moderate to severe problems with substance abuse; in more than 95% of the cases, alcohol was the substance abused. Several recent studies indicate that a very disproportionate share of head trauma patients are alcoholic.

The most commonly cited and best established predisposing factor in head trauma is alcohol abuse shortly before injuries, particularly motor vehicle accidents, falls, and assaults. In some persons, alcohol abuse after traumatic brain injury may become a secondary condition that exacerbates residual cognitive, balance, and behavioral impairments. The rate of rehospitalizations for head injuries is nearly twice the rate of occurrence of new injuries. In addition, returning to drinking following head injury may complicate successful rehabilitation, access to health services, return to work or school, and maintenance of positive family and other social relationships.

Recent years have seen an increased awareness of coexisting alcohol problems among persons with traumatic brain injury, and this has encouraged a wave of attempts to integrate substance abuse counseling services into rehabilitation settings. But only a fraction of traumatic brain injury survivors are admitted to
rehabilitation programs where more extensive substance abuse treatment would be possible. Many more are admitted to acute medicine, neurology, or neurosurgery units, then discharged with only outpatient follow-up.

**Intervention Characteristics**

An alcohol abuse prevention program for traumatic brain injury survivors would be implemented most effectively in the acute medical setting prior to rehabilitation, transfer, or discharge. At this time, close friends and family members are typically present, and along with patients, are most open to change and advice about the potential negative consequences of alcohol use. This may be particularly true for persons who were drinking at the time of injury, because the negative consequences of alcohol consumption have presumably become concrete and dramatic. The patient and his or her support system are also likely to be surrounded at this time by health care professionals whose advice on health-related issues they typically respect. Surveys of people with addictions show that more than 80% are not committed to changing their behavior. Therefore, the main therapeutic goals of this intervention are to increase the persons' perceptions of the risks and hazards associated with drinking and to strengthen their sense that change is possible.

Potential participants will be solicited from consecutive admissions to the neurosurgery units at a regional trauma center. A research assistant will screen all persons with isolated traumatic brain injury admitted to the neurosurgery within the first 36 hours after admission. Those approached for this study would have isolated head injuries with initial scores greater than 8 during the first 24 hours on Glasgow Coma Scale (a measure of the depth or quality of coma), a positive blood alcohol level, and a stable family member or confidant to report on the patient's alcohol use and to be involved in post-discharge care. (Participants may not be included if they will be discharged to a long-term care facility.)

There will be three stages to this intervention. The comprehensive assessment stage will evaluate the survivor's alcohol use, alcohol dependence, alcohol-related life problems, and other drug use severity. Second, the survivor and significant other will participate in a single detailed counseling session in which feedback from the comprehensive assessment will be reviewed, encouraging the survivor to contemplate the discrepancy between his or her drinking behavior and life goals. The feedback session ends after a specific plan is reached and appropriate referral information is provided. Information from the counseling session will be reinforced through written materials including a summary of the assessment results, a self help booklet, and a copy of the specific plan arrived at during the session. Third, after the patient is discharged from the hospital, an alcohol counselor will make a series of scheduled telephone follow-up calls to the patient and the significant other at 7, 14, and 30 days after discharge. The first two calls will consist of structured data collection and guided support components.
Desired outcomes will be that survivors and their significant others accept the intervention, that they find the intervention useful, and that there is a decrease in alcohol consumption.

8) Preventing Alcohol Abuse Relapse
Following Alcohol-related Traumatic Brain Injury

Summary of Recommendation
Prevent renewed alcohol abuse in the traumatically brain injured individual by modifying relapse prevention strategies to account for the cognitive impairments that often occur after brain injury. Integrate some standard brain injury rehabilitation principles into alcohol treatment programs for these individuals, including compensatory memory strategies, repetition of learning strategies, use of mastery models for approaching the problem, and programming for generalization to an individual's home and community environment. Close follow-up is necessary to ensure that relapse prevention strategies are in place and found to be relevant to the patient's home setting.

Locus of Intervention: Clinical preventive services

Participants: People with mild to moderate traumatic brain injury (who will most likely recover enough to live in a non-institutionalized setting)

Discussion of the Problem
Traumatically brain-injured individuals with a history of alcohol abuse may experience a relapse in such behavior following their injury. Patients may be particularly vulnerable to this problem in the post-trauma stage because of decreased tolerance to alcohol's effects and the complications of mixing alcohol with medications used in rehabilitation and seizure control. In addition, alcohol use may be encouraged in the post-acute rehabilitation phase by stresses associated with the injury, including the resultant physical, neuropsychological, social, and vocational limitations; changes in mood and self-esteem; an increase in discretionary time, boredom, and isolation; increased susceptibility to social/peer pressure to be "part of the group"; and the demands and limitations of the rehabilitation process.

Many of the cognitive impairments that are present following moderate to traumatic brain injuries — including impairments in motor functions, attention, and concentration — are similar to the cognitive deficits associated with chronic alcohol dependence. Research shows that individuals with pre-existing cognitive deficits from a history of alcohol abuse may be more likely to be affected by chronic brain injury. Alcohol may exacerbate the impairment seen in brain-damaged individuals, or the brain damage may leave the individual more
vulnerable to the effects of subsequent alcohol or drug use. The effects of both alcohol and head trauma on cognitive function may be compounded.

The combination of alcohol use and traumatic brain injury sets up significant barriers with regard to independent living and vocational re-entry, and it increases the difficulty of providing vocational rehabilitation to re-engage the person into the world of work. Few brain injury rehabilitation programs are equipped to address the problems associated with alcohol dependence, and similarly, few alcohol treatment programs address the specific needs and cognitive deficits of brain-injured individuals. As a result, efforts at rehabilitation may reach a standstill.

**Intervention Characteristics**
Alcoholics and traumatically brain-injured individuals often lack the cognitive competencies necessary for a successful therapeutic process, including the ability to receive and process information and translate it into behavioral changes. Sending the traumatically brain-injured individual into a standard treatment program typically has not proven beneficial because these programs are often too fast-paced, require writing and memory skills, and employ materials that are too abstract conceptually for the patient to absorb, process, generalize, and apply. Research suggests that effective treatment programs for cognitively impaired alcoholics should be structured interventions focusing on the development and rehearsal of social and behavioral coping skills, including drink-refusal, problem solving, and drinking-related social skills.

This intervention will be designed around a coping skills training group. Participants will meet for no more than 90 minutes, twice weekly for 12 weeks. The final session will be an individual meeting, but all others will be in a group format with a maximum of 8 persons per group. The group sessions will consist of a blend of didactic information sharing, discussion of the ways in which the material applies to the individual group members, and more active techniques such as behavioral reversal and role-playing, modeling, and feedback. Group members will review videotapes of themselves during role-playing sessions to see their behavioral performance and suggest alternatives. In addition, each participant will meet briefly at least once per week with a counselor for an individual session to clarify information and concepts. This procedure of combining groups with periodic individual sessions has been used successfully in standard relapse prevention programs with alcoholics.

Participants will receive six different blocks of instruction, and at the end of each, they will take a "written exam" concerning the information presented to them and an "oral exam" in which they will be asked to give examples of how the material applies to them and their specific alcohol and drug use problems. Each participant must either perform successfully on each of these tests or re-take them before beginning the next content section; after three trials, the individual will be moved to the next treatment module.
The desired outcomes of this intervention are reduced alcohol use, problem severity, and drinking-related behaviors; improved alcohol-related self-efficacy and coping; improved neuropsychological function; improved emotional status; and improved psycho-social function.

9) Prevention of Contractures In Persons with Traumatic Brain Injuries

Summary of Recommendation
Monitor daily all patients admitted to an intensive care unit with a Glasgow Coma Scale score of 12 or below or with a coma duration equal to or greater than 48 hours for range of motion and changes in risk factors to allow earlier intervention and prevention of complications.

Locus of Intervention: Clinical services

Participants: All persons with moderate to severe brain injuries, their families, intensive care nursing personnel and other health care providers.

Discussion of the Problem
Persons with moderate and severe brain injuries frequently experience contractures, a loss of active and passive range of motion around joints. These contractures may be due to spasticity, rigidity, weakness, immobilization, paucity of movement, and such maladaptive patient behaviors as agitation and confusion. They occur most commonly in hips, shoulders, and ankles.

Many patients in intensive care units are particularly at risk because maintaining joint mobility often takes a relatively low priority on the list of nursing problems. For patients with severe traumatic brain injury, the presence of contractures greatly increases the difficulty of nursing care, interfering with hygiene and positioning in bed and wheelchair. For these patients, there is also a greater risk of developing pressure ulcers from weight bearing on bony prominences. For patients with higher levels of ability, contractures interfere with the independent performance of activities of daily living and may severely limit mobility options. Contractures may impair communication, socialization, patients’ ability to work, attend school, and access health services.

Intervention Characteristics
Prevention and control of contracture formation in patients with moderate and severe brain injury during the acute stage (first three months) is possible when there is early recognition and management of risk factors. It is first necessary to identify the potential for the occurrence of contractures. At admission to an intensive care unit, the traumatically brain injured patient will be evaluated for conditions including normal range of motion, muscle tone, location, abnormal posturing, presence of fractures, limb swelling, lacerations/skin ulcers, and presence of nerve injuries.
Interventions at this stage should include good bed positioning, tests for range of motion at least twice daily, early mobilization, and if the patient is stable, mobilization to standing using supported standing equipment. If a decrease in range of motion at a joint is noted during routine monitoring, a physical or occupational therapist should be consulted to provide more advanced positioning devices and to review the patient's status regarding risk factors. The nurse and therapist should consult with the treating physician if preservation of range of motion continues to be a problem despite their efforts. Medications and nerve blocks to control spastivity should be considered. If the treating physician is not conversant with the treatment options, then appropriate consultation with a rehabilitation specialist should occur.

The outcome of this intervention is, ideally, maintenance of normal range of motion, and at least, a functional range of motion.

Protocols for People with Chronic Conditions

10) Preventing Diabetic Foot Problems

Summary of Recommendation
Implement a systematic program of foot screening, with referral if necessary. Conduct client education concerning foot care with all diabetic individuals, and provide special footwear for individuals at high risk.

Locus of Intervention: Clinical services (primary care setting)

Participants: Individuals with Type I or Type II diabetes mellitus, family members, and primary care providers

Discussion of the Problem
About 14 million Americans are affected with diabetes, and many will develop foot problems. About 15% of diabetics will experience ulcers on their feet or legs sometime during their disease course. Often these wounds fail to heal, leading to subsequent surgery and amputation. The series of events leading to amputation usually begins with problem footwear or minor trauma. Inappropriate or ill-fitting shoes may cause or exacerbate the development of plantar calluses, which can lead to ulceration, infection, gangrene, and possibly amputation. Other problems include not checking the shoe for foreign objects or abnormal wear patterns, not wearing adequate padding such as socks and other insets, not allowing enough time to break in new shoes properly, and school or work surroundings that present irritants and objects that may cause wounds or abrasions.

Failure to maintain good control of one's diabetes is a key behavioral risk factor for foot problems. Diabetics need to take preventive measures and seek early
treatment for ulcers, infection, and other foot abnormalities, and they must pay attention to such conditions as dry skin, decreased sensation, tender areas, irritation, and slow healing sores. Biological risk factors include nerve damage, which occurs in up to 50% of long-term (20 years) cases of diabetes mellitus; vascular disease; and vision loss that inhibits self-inspection and care.

Symptoms including chronic pain, recurrent infection, and possibly the loss of a foot or limb affects diabetics’ quality of life and emotional well-being. Diabetic foot problems may curtail employment opportunities and limit mobility, and sedentary requirements while healing can increase isolation and reduce ability to care for family and to participate in educational and recreational activities.

**Intervention Characteristics**
This intervention is directed toward the secondary prevention of foot problems associated with diabetes. Screening for detection of diabetic foot problems, and patient education in foot care, will decrease the incidence of ulceration, infection, and possible amputation.

In this pilot project*, an office nurse will be designated to provide foot screening in the primary care setting. Medical assistants will assure that patients have their shoes and stockings removed prior to seeing the primary care nurse, who will inspect the feet, assess the degree of neural insensitivity, and provide patient education.

Desired short-term outcomes for this intervention will be compliance with guidelines and patient foot care knowledge and behaviors. Long-term outcomes will be a reduction in amputation rates.

11) Prevention of Vision Loss Due to Diabetic Retinopathy

**Summary of Recommendation**
Implement a systematic program of valid eye screening for all Type I and Type II diabetics with prompt referral of relevant patients for further treatment. Important strategies must include guidelines for the frequency of screening, a valid eye screening examination, access to ophthalmologic treatment, and an information system to ensure that all of the recommended steps take place in a timely fashion. Depending on the efficacy of the screening method, perform either an optometric exam, retinal photography or ophthalmologist care.

**Locus of Intervention:** Clinical preventive services

**Participants:** All individuals with diabetes mellitus, primary care providers, and ophthalmologists
Discussion of the Problem
Every year in the United States, about 8,000 new cases of blindness occur due to diabetes. A considerable share of diabetics fail to receive adequate diabetic retinopathy screening on a regular basis. Recent studies show that only about 60% of persons with Type II diabetes have been screened by an ophthalmologist within the past two years. One study showed that 55% of patients found to have diabetic retinopathy with high-risk characteristics had not been treated. Modifiable risk factors include the primary care physician's lack of knowledge and awareness about diabetic retinopathy, family and friends' inability to provide adequate support, lack of accessibility to proper eye care, and unsupportive work environments.

Diabetic retinopathy in its severe form can lead to vision loss, which restricts individual opportunity in numerous ways, including limited access to employment, health insurance and care; reduced level of income and promotional opportunities; and reduced integration into the social milieu. Loss of vision may affect an individual's sense of independence (e.g., no longer able to drive) as well as participation in hobbies and leisure activities. Another impact on quality of life is the altered position in the general population that a person with vision loss due to diabetic retinopathy may experience. The person may now have overt signs of disability, which changes the way he or she is perceived and treated in social settings. And once vision loss occurs, it may be more difficult for the individual to control his or her diabetes.

Intervention Characteristics
The general strategy of this intervention is a systematic program of valid eye screening for all Type I and Type II diabetics with prompt referral of relevant patients for further treatment. Appropriate strategies must include guidelines for the frequency of screening, a valid screening examination, access to ophthalmologic treatment, and an information system to ensure that all of the recommended steps take place in a timely fashion. Specific strategies will differ by the nature of the screening examination and type of examiner (optometrists or ophthalmologists, for example).

Within each primary care practice, one individual (physician, practice nurse, or other member of the practice team) will be responsible for the population-based management of the diabetics in that practice. This will involve maintenance of any information system that includes protocols and individualized care plans, assuring that recommended procedures are done on schedule, and making certain that patients have eye screening examinations at the intervals specified by the guidelines.

Another element of this program will be development of Diabetes Clinics, half-day sessions devoted to the care of a group of a practice's diabetic patients. The sessions will include visits with the practice nurse and primary care physician, performance of recommended assessments, screening maneuvers and educations, and — for the patient — active participation in medical screening and treatment.
Anticipated outcomes are increased detection and therapy for sight-threatening diabetic retinopathy and increased screening compliance for follow-up visits.

12) Prevention of Depression-related Disability Among Persons with Diabetes

Summary of Recommendation
Apply a depression treatment strategy while employing pharmacologic management for cases of major depression. For less severe cases of depression, integrate a problem-solving intervention for diabetes care. Pharmacologic management will be administered by a primary care physician, with consultation back-up provided by a consultation-liaison psychiatrist. A practice nurse will monitor medication adherence, implementing population-based management of diabetes in the primary care practice. Clinic staff will implement diabetes education interventions. A consulting psychologist will train clinic staff in implementing problem-solving and will provide ongoing consultation services to support implementation.

Locus of Intervention: Clinical preventive services

Participants: Persons with Type I or Type II diabetes mellitus experiencing depression that is sufficiently severe to require pharmacologic treatment or to interfere with functioning, health care providers, consulting psychologists

Discussion of the Problem
Research indicates that about 10% of adults with diabetes have depression severe enough to warrant pharmacologic intervention, while an additional 10% to 15% have less severe depression that may impair functioning and adaptation to illness. Studies also show that functional ability improves with reductions in depression.

Depression contributes directly to disability by causing profound fatigue, amplifying dysphoric physical symptoms and pain, and reducing motivation, hopefulness, and self-confidence. Depression impairs ability of diabetic individuals to take advantage of resources and opportunities that may improve function. The depressed person feels unable or unworthy and lacks energy and motivation. Depressed persons using health care services to improve function may be perceived as difficult, negative, dependent and unmotivated, undermining the effectiveness of interventions and leading to a tacit agreement between the patient and the provider that the patient's situation is hopeless.

Intervention Characteristics
This intervention incorporates secondary prevention efforts to identify and treat depressed persons with diabetes, regardless or whether specific treatment for depression is indicated.
Primary care clinics will assess depression status within the context of regular health status monitoring, using a brief (6-item) depression screen. When a patient is positive on a screening test for the first time, or when there is a substantial elevation from prior depression levels for that patient, the primary care physician will determine the current severity of the disorder and whether there is history of major depression, and review the patient's treatment history. Based on this assessment, a nurse will maintain a database showing depression status (major or minor), diagnosis and treatment history, drug treatment status requiring monitoring, and any need to modify standard diabetes care interventions due to the patient's depressive illness. A primary care physician will prescribe pharmacologic management.

Problem-solving interventions for minor depression will define the problem, attainable goals, and obstacles; identify resources, including personal strengths and assets, previous coping mechanisms, and advice; brainstorm alternative solutions; rehearse steps to achieve the preferred solution; and develop and evaluate interventions. Diabetes Clinics will provide, in the course of half-day sessions, an integrated curriculum targeting foot care and exercise to improve over-all functioning, and problem-solving techniques will be integrated into this curriculum. A consulting psychologist will review the diabetes care curriculum to integrate problem-solving techniques into the basic sequence of care, train staff to use problem-solving techniques, and periodically monitor the implementation of the curriculum with depressed patients.

Outcomes for this intervention include improved depression, performance of diabetes care activities, functional outcomes, and reduced health care costs.

13) Prevention of Low Back Pain Disability

Summary of Recommendation
Implement a work-based program to influence the response to back symptoms. In particular, address the psychological and physical aspects of the work environment to reduce the work-related back pain complaints associated with absenteeism and disability. Improve workplace communication to allow employees to report injuries without recrimination. Support recommendations for recovery and encourage return to work.

Locus of Intervention: Community services (work site)

Participants: Employees reporting work-related back pain problems, management/supervisors, and employers

Discussion of the Problem
Back pain is a ubiquitous malady, accounting for an estimated one-fourth of all work days lost and affecting more than half of the population some time during
their working careers. Only about 2% to 5% file back injury claims or seek medical care, however, and an even smaller percentage experience long-term disability and work intolerance. It is this small percentage that has led back problems to become the most common cause of disability in adults under the age of 45 years. Recurrent symptoms are common, but most episodes are mild and self-limiting.

Back pain problems are defined predominantly by complaints rather than identifiable physical pathology. Research shows that in the great majority of back pain complaints, no specific, verifiable pathology can be identified. Few risk factors for back symptom complaints have been clearly and consistently identified, and most symptoms occur gradually and without a precipitating accident or activity. There is a less-than-perfect association between pain report and disability. The new thinking about this issue is that, for many people, factors other than organic/biologic/disease processes are most important in influencing disability. The new model for medical intervention is to focus on encouraging early return-to-work and gradual resumption of normal activities following a back injury and avoiding surgery except in select cases when specific neurological signs are present.

Disability associated with low back pain affects an individual's opportunity by limiting work options. Individuals may be fearful of physically demanding jobs and employers may be reluctant to hire applicants with a history of low back pain. Activity restrictions, recommended by treating physicians, may affect opportunity for employment. These limitations on work choices also have a major impact on the person's economic self-sufficiency. Low back pain also restricts participation in many normal social, recreational, and family activities.

**Intervention Characteristics**

This intervention assumes that work loss due to low back pain disability can be curtailed through supervisor training to change the views of management and supervisors toward back pain complaints and away from employee behavior. This supervisor training program is intended to encourage a more empathic, humane response to injury and illness complaints and to provide an environment more supportive of early return to work. Supervisors are encouraged to view the problem from the perspective of the employee experiencing back symptoms. Such complaints are often viewed more suspiciously than other industrial injury reports because the specific condition underlying back symptoms is seldom verifiable. As a result, the person's integrity is sometimes questioned. This can lead to an adversarial situation that is counterproductive to the goals of all parties involved.

The use of temporary modified duty, when necessary, allows the individual recovering from back problems to continue working to maintain a more normal lifestyle during recovery. Such temporary modifications will also demonstrate that the employee is of value to the workplace. Supervisors will play a key role in this intervention, as the focus of this approach and as a partner in maintaining open communication.
The primary outcome will be a reduction in the number of work days lost due to long-term, back-related disability. The intervention's impact on total medical and indemnity costs may also be obtained from personnel and industrial insurance records.