

RESEARCH PLAN.**A. SPECIFIC AIMS**

The purpose of the Colorado Injury Control Research Center (CICRC) is to participate with communities to reduce injuries, primarily in Public Health Service (PHS) Region VIII. Core values that govern the activities at the CICRC are: a primary focus on reducing disparities in the prevention and control of injuries; seeking collaborative relationships with communities; innovation in education/training, community programs and research; and identification of evidence-based, efficient approaches to prevent of injuries. The mission of the CICRC is to reduce the occurrence, severity and adverse consequences of injuries through research, education and service. Emphasis is placed on building community based partnerships, particularly among under-served populations such as Hispanics, Native Americans, and rural residents and their families.

The specific aims of the CICRC are to: 1) maintain an organizational structure to ensure effective coordination of the CICRC; 2) promote training and education related to injuries and control of injuries; 3) expand existing community based activities in injury control and prevention; 4) utilize existing data to identify injury patterns; 5) increase and diversify funding sources for injury research, community-based programs, education and training; 6) disseminate information about injury prevention and control; 7) conduct ongoing of the CICRC program; 8) promote the development of new investigators in injury prevention and control research; and 9) conduct high quality, innovative research in acute care, prevention/control, and rehabilitation of injuries.

B. BACKGROUND

The CICRC is located in PHS Region VIII. PHS Region VIII includes Colorado, Wyoming, Montana, South Dakota, Utah and North Dakota. In the region, 23.2% of the population is rural non-farm, and 2.3% are rural farm residents (US Bureau of the Census, 2000). The population density of each state in the region is significantly lower than the US as a whole; these population densities have important implications for the development of appropriate injury prevention and control strategies in the region. Death rates from all injuries are higher than US rates in all the states except North Dakota; unintentional injury death rates are higher than US rates in all states except Utah; motor vehicle occupant death rates are higher than US rates in all states except Colorado and Utah; and suicide death rates are higher than US rates in all states in the region (Table 1). Limited data are available on hospitalized nonfatal injury rates, but total injury, unintentional injury and motor vehicle occupant injury rates are higher in Colorado and lower in Utah compared to US rates. Suicide attempt rates are lower in Colorado and Utah compared to US rates which is interesting given the higher rates for suicide death in the region. The percent of the population in the Region that is Native American is high in all states. The percent of the population that is Hispanic in the PHS Region VIII is lower than the US average in all states except Colorado. Due to the high percentage of Hispanics in Colorado and the high unintentional injury death rates among this rapidly growing population (50.1 per 100,000 versus 40.5 among non-Hispanics in 2003) (<http://www.cdc.gov/ncipc/wisqars>) and the high percentage of Native Americans and their high injury rates (CDC, 2003), these groups have been the focus of a number of education and training, community, and research activities at the CICRC.

Table 1: Selected characteristics of Public Health Service Region VIII by state

| Characteristic | USA | CO | WY | UT | SD | ND | MT |
|--|--------|------|---------|------|---------|---------|---------|
| Population density (per square mile) | 79.6 | 41.5 | 5.1 | 27.2 | 9.9 | 9.3 | 6.2 |
| 2004 Census estimate | | | | | | | |
| Total population | 293.6M | 4.6M | 506,529 | 2.4M | 770,883 | 634,366 | 926,865 |
| Rural % | 21 | 15.5 | 34.8 | 11.7 | 48.1 | 44.2 | 46.0 |
| Demographics | | | | | | | |
| Over 65 years | 12.4 | 9.7 | 11.7 | 8.5 | 13.2 | 14.7 | 13.4 |
| Ethnicity (% of total) | | | | | | | |
| Asian, Pacific Islander | 3.7 | 2.3 | 0.7 | 2.4 | 0.6 | 0.6 | 0.6 |
| Black | 12.3 | 3.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.3 |
| Hispanic | 12.5 | 17.1 | 6.4 | 9.0 | 1.4 | 1.2 | 2.0 |
| American Indian | 0.9 | 1.0 | 2.3 | 1.3 | 8.3 | 4.9 | 6.2 |
| White | 69.1 | 74.5 | 88.9 | 85.3 | 88.0 | 91.7 | 89.5 |
| Injury deaths/100,000 (age-adjusted, 2003) | | | | | | | |

| | | | | | | | |
|---|-------|-------|------------------|-------|------------------------------------|------|------|
| Total injuries | 55.9 | 64.7 | 81.2 | 65.1 | 67.9 | 54.6 | 81.7 |
| Unintentional injuries | 37.2 | 42.0 | 54.6 | 34.5 | 50.1 | 39.5 | 54.2 |
| Transportation-related | 16.2 | 16.8 | 28.5 | 15.1 | 28.3 | 18.9 | 28.6 |
| Falls | 5.8 | 9.1 | 9.1 | 6.2 | 9.1 | 8.3 | 6.3 |
| Suicide | 10.7 | 16.0 | 21.5 | 15.6 | 13.5 | 12.2 | 19.3 |
| Homicide | 6.2 | 4.3 | 2.8 | 2.7 | 2.8 | 2.2 | 4.1 |
| Injury Hospitalizations/100,000 (age adjusted, 2003) | | | | | | | |
| Total injuries | 527.5 | 682.3 | No | 492.0 | <i>No data available for other</i> | | |
| Unintentional Injuries | 439.1 | 580.6 | | 433.0 | | | |
| Transportation-related | 65.3 | 73.7 | <i>data</i> | 44.0 | <i>states in Region VIII</i> | | |
| Falls | 206.8 | 237.1 | <i>available</i> | 338.6 | | | |
| Suicide attempts | 60.8 | 53.8 | | 42.0 | | | |
| Assault | 27.1 | 25.8 | | 10.0 | | | |

The CICRC utilizes a participatory action research theoretical model to incorporate community involvement in the development of education and training, prevention/control programs and research. Community requests for assistance have provided direction for program development within the CICRC. The approach is consistent with underlying assumptions of participatory action research which focuses on systems theory, humanistic values, the development of human potential, and democratic decision making (Whyte, 1991). The knowledge generated is intended to help solve practical problems within a community to generate social change using a collective process of inquiry and active participation of under represented people (Hall, 1979). To facilitate community input in the process of program development, the Community Readiness Model developed at the Tri-Ethnic Center for Prevention at Colorado State University (Edwards et al., 2000) has been used. Community readiness is conceptualized as issue-specific and as a model that guides community change and can be used to evaluate progress (Lewis et al., 2005). The Community Readiness interview assesses characteristics of a community, the population, community leaders, and prevention service systems available to influence successful development and implementation of prevention strategies. At the CICRC this model has been used in prevention programs related to traumatic brain injuries, use of child booster seats, enhanced enforcement of seatbelt use (Stallones & Thoreson, 2006), school playground injuries, bicycle safety and rehabilitation services for people with traumatic brain injuries.

C. PROGRESS REPORT-COLORADO INJURY CONTROL RESEARCH CENTER

HISTORY OF THE CICRC

The CICRC was established in 1995, within the land grant institution in Colorado; it is the only Injury Control Research Center funded by the CDC which exists outside of a school of public health or school of medicine. The CICRC was established with a three year grant of \$350,000 a year from the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. The focus was rural and under-served populations including agricultural workers. Five research projects were designed to build a core of faculty interested in injury research; these covered prevention, acute care, and rehabilitation. The stage of development of the organization was initiation and efforts focused on the development a network of researchers and community partners interested in injury prevention and control. The CICRC was a collaborative effort between researchers from four colleges at Colorado State University (CSU) in Fort Collins, two departments from the University of Colorado at Denver and Health Sciences Center in Denver (UCDHSC) and the Colorado Department of Public Health and the Environment (CDPHE) in Denver. There were graduate programs at CSU in environmental health, technical journalism, occupational therapy, and psychology involved during this period. The UCDHSC offered a Master of Science in Public Health and doctoral degrees in epidemiology, biostatistics and bioinformatics, and residency and fellowship training programs and was an active partner in the development of the CICRC. The CDPHE had injury surveillance systems that included suicide, traumatic brain injury, spinal cord injury, occupational injuries, child fatality review, and fire and flame related injuries. In 1998, CICRC was re-funded for another three year period receiving \$500,000 a year. During that period there were three research grants funded that included acute care, rehabilitation, and prevention. CICRC Associates included researchers from four colleges at CSU, two departments at the UCDHSC, the CDPHE and added the University of Northern Colorado (UNC-CO) and the United Tribes Technical College (UTTC) in Bismarck, North Dakota. UNC-CO offered the Master of Public Health degree in health education and UTTC has the only Associate of Applied Science degree program in injury prevention and control in the world. The development stage of the CICRC was institutionalization and expansion with efforts

focused on developing cohesion within the core activities, integration across the diverse areas of research, and expanding the research network beyond the group involved in the research core. The CDPHE began a concerted effort to develop a Trauma Registry to capture non-fatal hospitalized injuries, developed a focus on domestic violence, lost funding for the suicide and fire-related surveillance, and increased interactions with local health departments involved in injury prevention activities. Expanded CICRC activities involved a wide range of community groups including schools, law enforcement, fire safety professionals, hospitals, local health departments, and non-governmental organizations such as SAFEKIDS throughout the region. In September, 2001, CICRC was re-funded for five years. The original funding was for \$905,500 a year but with recent budget reductions the amount has fluctuated downward each year. The phases of development represented during this period were expansion (Education and Training projects; Community-initiated grants; Seed projects) and professionalism (Administrative management; reporting systems; evaluation of management activities). This is reflected in the initiation and maintenance of formal reporting systems, detailed annual evaluations of CICRC administrative core activities, and identification of priority injury areas. This report relates to progress from August, 2001-July, 2006.

Specific Aim 1: Maintain an organizational structure to ensure overall coordination of the CICRC.

Definitions: For purposes of this report, **CICRC Associates** are individuals who have received direct funding from the CICRC as Core faculty or as Principal Investigators on research projects, including seed grants. The **CICRC Network** includes individuals who have received community prevention program or technical assistance, are community partners in injury prevention working groups, or have attended CICRC Seminars and provided contact information for follow-up communications.

Strategic planning session (May 17-18, 2002)

With the growth of the CICRC, there was a need to develop a detailed **Strategic Plan**. Participants at the Strategic Planning session were: Lorann Stallones (Director CICRC, Professor of Epidemiology in the Department of Psychology, CSU); Carolyn DiGuseppi (PI CICRC grant, Associate Professor, Department of Preventive Medicine and Biometrics, UCHSC); Pat Sample (Associate Director, CICRC, Associate Professor, Department of Occupational Therapy, CSU); Jeffrey Gliner (Evaluator, CICRC, Professor, Department of Occupational Therapy, CSU); Julie Gibbs-Long (Administrative Staff, CICRC); Ernie Chavez (Department Chair, Psychology, CSU); Ed Hendrikson (CICRC Associate, Migrant and Environmental Health Director, Salud Family Health Centers); Michael Slater (CICRC Associate, Professor Department of Journalism and Technical Communications, CSU); Carol Meidenger (STIPDA Representative, Injury Specialist, North Dakota Department of Health); and Lenora Olson (Associate Director, Utah Injury Prevention Center and Research Assistant Professor, Department of Pediatrics, University of Utah). The Strategic Planning session was facilitated by Bill Flexner of Option Technologies Interactive. Three priority action items were identified: 1) organize CICRC for action, research and growth; 2) bridge research and practice; and 3) diversify and increase funding to ensure stability. These items have guided subsequent activities within the Administrative Core.

ADMINISTRATIVE CORE

Management/administration: The CICRC is located within the Department of Psychology at Colorado State University, administratively responsible to Dr. Ernie Chavez, the Department Head, to the Dean of the College of Natural Sciences, Dr. Rick Miranda and, as a recognized Center, Institute, and Other Special Units (CIOSU) at Colorado State University, directly to the Vice President for Research, Dr. Hank Gardner. CIOSUs at CSU are reviewed on a regular basis by the University Faculty Council and the CICRC was reviewed and approved for the third time in 2006. The organizational structure of the CICRC within the university is shown on **Figure 1**. Dr. Stallones serves as the Director and is responsible for overall management of the Center, for assuring that the Center meets scientific, program, and training goals and for direct financial management. Activities of the CICRC are organized around education and training, community programs, and research. Across these areas, technical assistance, dissemination, and consultation are CICRC Associates responsibilities.

Internal Advisory Board: In response to the recommendations from the Strategic Planning session, the organizational structure of the CICRC Internal Advisory Board was modified to include the Director (L. Stallones), an Associate Director for Community Programs (J. Gibbs-Long), an Associate Director for Education and Training (P. Sample), an Associate Director for Research (C. DiGuseppi) and an Internal Evaluator (J. Gliner). This group has met bi-monthly by teleconference to discuss progress, program development, and management of the CICRC. The Internal Advisory Board also solicited and reviewed seed (pilot) grant proposals (program described in **Specific Aim 8**) and made recommendations in regard to

scientific quality, fit with the CICRC mission, and funding of proposals. After the Strategic Planning session, the Internal Advisory Board developed job descriptions (**Appendix A**), revised the mission statement, and developed a description of the roles of the Internal and the External Advisory Boards. The role of the Internal Advisory Board is to: coordinate, monitor, and promote CICRC research, educational and service programs, and administrative core activities; identify and prioritize new activities and programs; and ensure that all programs and activities meet the mission of the CICRC. In order to accomplish these tasks, the Board shall consist of the CICRC Director and Associate Directors, CICRC evaluator and additional CICRC faculty members as needed. In 2006, an additional faculty member was added to the Internal Advisory Board in order to assist with further development of injury prevention work among Native populations in the region. She is an Associate Professor with the Center for Applied Studies in American Ethnicity (CASAE) and the School of Social Work at CSU. Professor Bubar has a J.D. from the University of Colorado Law School, Boulder, has worked extensively in Indian Country and Alaska Native communities, and been a national advocate in the development of Children’s Advocacy Centers, multidisciplinary teams, child maltreatment, and criminal justice issues in tribal communities. Based on the recommendations of the External Advisory Board (see below), the Internal Advisory Board developed a list of priority injury research areas that they believed were important problems in the region based on societal burden and reflected CICRC strengths and CICRC Associates areas of interest: Traumatic Brain Injuries; Falls in the Elderly; Built Environment; Alcohol; Suicide; and Violence. Table 2 contains a description of current and planned activities related to the three areas (community programs, education/training and research) of the CICRC program.

Table 2: Selected CICRC Activities by priority topic areas

| CICRC Injury Priority | Healthy People 2010 | NCIPC/Acute Care, Disability and Rehabilitation Priority | Community Programs | Education/ Training | Research Projects |
|--------------------------|-------------------------|---|---|--|---|
| Traumatic brain injuries | 1.15; 6.4; 15.1; 15-23. | Ensure people with TBI receive needed services; Identify risk factors/develop/evaluate interventions for secondary conditions following TBI; Determine impact TBI on special populations; Develop/evaluate interventions for reducing disability due to “mild” TBI; Evaluate effectiveness of interventions to improve bicycle safety | <ul style="list-style-type: none"> • CICRC Bicycle Safety and Helmet program.* • Cycle Safety Circus.*† • Salud Family Health Centers Safety Fairs.*† • Increasing Usability and Accessibility of the Brain Injury Association of Colorado Resource Website. • Experience of State Agency Mobilization around Service Needs for Persons with Brain Injury. • Evaluation of brain injury service linkage marketing activities. | <ul style="list-style-type: none"> • Development of a BrainSTARS Training DVD-for families, health care professionals and school personnel on TBI and its impact on children’s development.* • Hidden Trauma (TBI): Tools for Success.* • Hidden Trauma-The Next Step-A Collaborative Conference on TBI Prevention Strategies* • Traumatic Brain Injury in Colorado: Linking Practitioners to Community Services.* | <ul style="list-style-type: none"> • Uncovering windows of opportunity after TBI: Implications for neurobehavioral recovery.* • Factors affecting outcome after traumatic brain injury.* • Care access and life outcomes following TBI.* • EEG and epileptogenesis after traumatic brain injury.‡* • Disability after non-hospitalized traumatic brain injury in Colorado: A population-based study.‡* |
| Falls among older adults | 15-27; 15-28 | Develop/evaluate community-based interventions to prevent falls among older adults. | <ul style="list-style-type: none"> • Seniors and Law Enforcement Together (SALT). *† | <ul style="list-style-type: none"> • STIPDA Injury Surveillance Working Group (ISW)-4 (Falls) | <ul style="list-style-type: none"> • Prevention of falls in community-dwelling older adults through environmental change and education.* • The neural mechanisms of ankle muscle steadiness and their relation with control of posture in elderly fallers and non-fallers.* • Marketing fall prevention classes to older adults in faith based |

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| | | | | | congregations: Cluster randomized control trial. ‡ * |
| Built Environment | 8-1; 8-2; 8-23; 15-16; 15-18; 15-26; 15-29. | Develop/evaluate interventions to modify hazardous behaviors such as aggressive, inattentive, drowsy driving; Evaluate strategies for widespread dissemination/implementation to reduce injuries at home/in community | <ul style="list-style-type: none"> Smoke detectors to migrant families (BOCES). * † SAFE WALK to school program with SAFEKIDS. * Drowning and safety issues along Boulder & White Rock Ditch. * † Salud Family Health Centers Safety Fairs. * † Child Occupancy Protection Program. * † 3rd, 4th and 5th Annual Children Safety Fair and Car Seat Check-Up. * † Newborn, infant, and toddler safety project. * † | <ul style="list-style-type: none"> Training for Safer Families: Injury Prevention and CPR/First Aid for Migrant and Homeless Families. * † | <ul style="list-style-type: none"> Understanding and treating high anger driving from rural and non-rural backgrounds. * Housing safety among immigrant children in Denver, Colorado: A pilot study. * Pilot Study of drowning and near-drowning in irrigation canal, reservoirs, and drainage ditches using geo-spatial techniques of investigation. * Healthy Homes for Rural Migrant Families Demonstration Program. A Study of Immigrant Housing Conditions in Commerce City, Colorado. Child Booster Seat Study Community-Based Intervention to Reduce Motor Vehicle-related Injuries Safe Travel, Work & Home for Migrant and Seasonal Workers. Community Action for Migrant Child Injury Prevention. Pilot Study of Geo Spatial Investigation: Drowning, Irrigation Ditches, Reservoirs and Drainage Ditches. Reservation Youth and Car Crashes. |
| Alcohol | 7-2; 15-15; 15-17; 26-1; 26.6; 26.7. | Evaluate strategies to implement/disseminate interventions to reduce alcohol-impaired driving; Identify situational factors that contribute to incidents of youth violence. | <ul style="list-style-type: none"> Prevent Alcohol and Risk-related Trauma in Youth (PARTY) * † | <ul style="list-style-type: none"> Training in systematic review of alcohol-impaired driving interventions. * Alive at 25. * † | <ul style="list-style-type: none"> Alcohol-Impaired Driving: Register of Controlled Studies. * The moderating effects of sensation-seeking and self esteem on the relationship between substance use and violence behavior among rural middle school students. * Telephone Advise for Problem Drinkers: Feasibility study. Alcohol risk perceptions and the media. |
| Suicide | 7-2; 7-3; 7-10; 18-1; 18-2. | Develop/evaluate/institutionalize processes for creating/implementing suicide prevention; Evaluate efficacy/effectiveness of suicide prevention activities; Clarify influence of contextual forces on rates of suicidal behavior; Clarify individual risk/protective factors on suicidal behavior; Develop/evaluate methods to disseminate | <ul style="list-style-type: none"> Work with Suicide Resource Center of Larimer County. * † | <ul style="list-style-type: none"> ACTIVE MINDS. (CSU student organization). * † Community forum: Suicide prevention in secondary schools. * Met with Editorial staff at the Colorado regarding recent reporting of suicide and suicidal behaviors in the newspaper. * <i>The Month of October:</i> | <ul style="list-style-type: none"> Suicidality among American Indians: Prevalence and Risk. * Evaluation of a youth suicide prevention program. * Evaluating Population-Based Approaches to Suicide Prevention through Systematic Reviews. ‡ * Exploratory study of suicide and occupational exposure to pesticides. ‡ Suicide, aggression, and organophosphate pesticide exposures. ‡ |

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| | | information about effective suicide prevention/interventions. | | <i>Another One's Poison</i> (Film-Sri Lankan suicides).* | |
| Violence | 7-2; 15-32; 15-34; 15-37; 15-38; 26-7. | Identify situational factors that contribute to incidents of youth violence; Develop/evaluate interventions to modify hazardous behaviors such as aggressive, inattentive, drowsy driving; Identify social norms that support intimate partner violence/evaluate strategies to change them; Evaluate health consequences of partner violence, sexual violence, child maltreatment. | <ul style="list-style-type: none"> • Evaluation of Crossroads Animal Fostering Program.* † | <ul style="list-style-type: none"> • Traumatic Brain Injury in Colorado: Linking Practitioners to Community Services.* | <ul style="list-style-type: none"> • A survey of resident aggression toward certified nursing assistants in long-term facilities.* • The moderating effects of sensation-seeking and self esteem on the relationship between substance use and violence behavior among rural middle school students.* • Validating the Violence Protection and Screening Tool (VPRS) for Primary Care.* • Understanding and treating high anger driving from rural and non-rural backgrounds. * • Colorado Violent Death Registry Surveillance |

* CICRC funding; †Community initiated project; ‡ Proposed or currently under review.

External Advisory Board: The role of the External Advisory Board is to provide scientific and programmatic overview of the grants funded by the CICRC. The External Advisory Board also reviews the mission of the CICRC and the match between the mission statement and goals of the CICRC and the activities that are ongoing within the grants programs and the administrative core. In order to accomplish these tasks, the Board must consist of a mix of nationally and internationally recognized research scientists in injury prevention and control and professionals involved with prevention and control of injuries.

Members (2001-2005): **Andrew Alvarado, MSW, Ed.D, Professor**, California State University, Fresno; Department of Social Work Education, Fresno, California; **Rose Alma McDonald, PhD, Chief Executive Officer**, Katenies Research and Management Services, Hogsburg, New York; **Carol Meidenger, MPH**, Injury Specialist, North Dakota Department of Health, Bismarck, North Dakota; **Carol W. Runyan, PhD, MPH, Director**, Injury Prevention Research Center; University of North Carolina, Chapel Hill, North Carolina; **Craig Zwerling, MD, Ph.D., MPH, Director**, University of Iowa Injury Prevention Research Center, The University of Iowa, Iowa City, Iowa. A teleconference call was held with the External Advisory Board on September 26, 2003. In its assessment of the match between the mission statement and goals of the CICRC and the activities within the grants programs and within the administrative core the following actions were recommended by the External Advisory Board: 1) address the topic of a center research agenda and identification of "markers of success" through the CICRC Internal Advisory Board; 2) explore regional scientific conferences where information could be provided to participants regarding the seed grants program; 3) continue to identify researchers through Center Associate networking and Internet searches; 4) develop more activities to take advantage of Native American groups in the region; and 5) explore a way to expand dissemination about activities across the region. CICRC research priorities were developed as shown in Table 2. The identification of regional conferences was not successful, therefore CICRC staff was active in the development of a PHS Region VIII networking group initiated through the Children's Safety Network at EDC which includes each state in the region involving State and Territorial Injury Prevention Directors (STIPDA), Adolescent Health Coordinators, Maternal and Child Health Injury Prevention Specialists, and Child Death Review coordinators. Plans to develop more activities related to Native populations in the Region have met with moderate success, but in order to increase those activities, Professor Bubar was added to the Internal Advisory Committee. To address item 5 in the next funding cycle, CICRC Associates propose to establish a bi-annual regional conference on injury prevention and control.

Specific Aim 2: Promote training and education related to injuries and control of injuries.

Graduate Courses and Graduate Student Trained: A list of injury-related courses has been developed for graduate students interested in injury prevention and control (**Appendix B**). Through articulation agreements between institutions of higher education in Colorado (CSU, UCDHSC, UNC-CO), graduate students enrolled in one institution can enroll in courses offered at other state funded institutions. Courses listed are offered at CSU, UCDHSC (Council on Education for Public Health [CEPH] accredited MSPH program) and the UNC-CO which has a CEPH accredited MPH program in Community Health Education. In addition, a Colorado School of Public Health (**Appendix C: Strategic Plan**) is being developed that will be a collaborative program including the UCDHSC, CSU and UNC-CO. In 2001-2006 there were 64 students involved in CICRC research training; of these 14 are current students and 50 have graduated (**Appendix D: title of projects, department/college affiliation and student names**). The number of students involved reflects a steady increase over the past five years and reflects increased involvement of CSU undergraduate students.

Graduate Medical Education and Physicians Trained: Between 2003 and the present, 4 preventive medicine residents have been supervised for extended practicum rotations (4-12 months) with the CICRC at UCDHSC under the supervision of Drs. DiGuseppi or Litt. These rotations focused on injury epidemiology and prevention and/or training in systematic reviews related to the prevention of alcohol-impaired driving. Each resident conducted research and prepared at least one manuscript during the rotation.

Alumni Survey: In 2003-2005, we surveyed graduate students who had completed research training through the CICRC. Of the 77 students (1995-2005), we located 60 (77.9%). Of these, 50 (83.3%) responded. The main purpose of the survey was to determine the overall percentage of graduates currently involved in injury-related professional activities. Of the 50 graduates respondents, 32 (64%) are currently professionally involved in injury prevention, acute care, treatment of injuries and/or rehabilitation from traumatic injuries.

United Tribes Technical College (UTTC), Bismarck, North Dakota: UTTC offers the only two year injury prevention Associate of Applied Science degree program in the world. A memorandum of understanding between CSU and UTTC has been in effect since September, 2000. As part of the agreement, CICRC Associates assisted UTTC faculty in preparing a grant application to the Department of Defense for technological improvements at UTTC and conducted an evaluation of the training program.

UTTC Injury Prevention Training Program Evaluation: The purpose of the evaluation was to determine the feasibility of expansion of the current two-year injury prevention program to a four-year program and to gain feedback regarding the program. Of the respondents, 55% indicated they chose the program because it was needed in their community. Respondents indicated that too many young people were dying on their reservations. The remainder of the students indicated injury prevention was related to their field of interest such as health (nursing) or criminal justice. When asked what they would like to do after completing the UTTC Injury Prevention Program, 55% indicated they would continue for bachelors degrees, 40% indicated they would pursue a job such as an injury prevention specialist, police officer or public health worker, and 10% indicated they would enroll in other training. New skills learned as part of their training at UTTC: 70% learned prevention program planning skills; 65% learned public speaking skills; 60% learned communication skills, computer skills and prevention program evaluation skills; and 50% learned general and technical writing skills.

Professional Training: Professional training is supported in a number of ways described briefly below. CICRC funds supported summer training/ workshops (2001 and 2002): "Injury in Colorado" and "Youth and Occupational Injury Prevention and Disaster Preparedness" developed by faculty from the UNC-CO. In 2001-2002, CICRC Associates served on the planning committee for the CDC/NCIPC 10th Anniversary Celebration held in Denver in June, 2002. In 2003, Dr. Stallones obtained a conference grant from CDC/NCIPC to fund a conference entitled: "Traumatic Brain Injury in Colorado Communities: Linking Practitioners to Community Services" (September, 2004) which addressed TBI across the lifespan, the interaction of TBI, development and mental health, treatment strategies, sensitivity to drugs among person with TBI, and resources available to address mental health issues among persons with TBI. This conference immediately preceded the Colorado Brain Injury Association Annual Conference and was so well received that the topic has been integrated into the annual conference. In 2004-2005, CICRC Associates served on the planning committee for the CDC/NCIPC Injury and Violence in America: Meeting the Challenge Conference held in Denver in May, 2005. CICRC funding has been provided to professionals attending local, state, regional, national and international conferences. Individuals who are interested in financial support to attend a conference submit a request and these are reviewed by a minimum of two Internal Advisory Board members. Funding was provided in 2004 to support Larimer County Sheriff and Colorado State Patrol attendance at the Biannual Colorado Emergency

Services, Safety and Prevention Conference. CICRC Associates have been supported to attend and present work at the World Injury Conferences in Montreal, Canada, Vienna, Austria, and Durban, South Africa. Professional training was supported by providing funds for conferences including two Hidden Trauma conferences (2003-2004, 2004-2005) assisting educators, health professionals, and parents address the needs of students with traumatic brain injuries, the Annual Native American Life Saver Conference (2002, 2003, 2004, 2005, 2006), and the development of a DVD for BrainSTARS, (2006) also designed for health care professionals, educators, and parents dealing with traumatic brain injured youth.

CICRC Seminars: Annually the CICRC hosts a bi-monthly series of injury related seminars (**Appendix E: Titles and presenters**). This provides an opportunity for integration of disciplines involved in the CICRC through presentations by research grantees and community partners. In 2001-2006, there were 45 CICRC seminars attended by more than 590 individuals representing researchers, local and state health departments, and non-governmental community organizations. Upcoming seminar information is posted on the CICRC website. The CICRC network list receives announcements of the seminars and information is posted on the CSU daily e-mail newsletters. The seminar series provides an opportunity to translate research projects into programs for practitioners, to increase interdisciplinary interaction, to provide more interaction among CICRC Associates, and to develop new research ideas.

Education and training grants: The CICRC Internal Advisory Board implemented a small education and training grants program to complement the community initiated grants and the seed grants. Applicants complete an application form which is reviewed by at least two members of the Internal Advisory Board (**Appendix F**). A total of 19 grants totaling \$54,238 were awarded in 2001-2006 (**Appendix F**). Topics covered included training for parents, health professionals and educators about traumatic brain injuries (The Hidden Trauma-Tools for Success; The Hidden Trauma-Next Steps, and Brain STARS), a defensive driving program for young adults (Alive-at-25), suicide prevention (Community gatekeeper education and at Colorado State University), CPR and first aid education for migrant and homeless families, and an Annual Native American Life Savers Conference sponsored by UTTC for injury prevention specialist in PHS Region VIII held in Bismarck, North Dakota (2002, 2003, 2004, 2005, 2006).

Technical Support and Consultation: Assistance in submitting grant applications: CICRC Associates received assistance with 26 injury-related grant applications for external funding to in 2001-2006; 3 faculty who have not been involved with CICRC were also assisted in preparing injury-related applications. One CICRC Network member received assistance in preparing two community grants; one was funded and the other was not. Assistance was in the form of identifying funding sources and preparation of applications including budgets, letters of support and other assistance as requested.

Specific Aim 3: Expand existing community based activities in injury control and prevention.

Community Initiated Injury Prevention Programs: The CICRC supports community initiated injury prevention programs through a grant program. Review of proposals involves a minimum of two CICRC Associates on the Internal Advisory Board. Applications are rated on: fit with CICRC mission; significance of problem and demonstrated need; project methods and procedures; feasibility of project and identified work plan (**Appendix G**). Recipients complete a project evaluation within 60 days after completion. Evaluation information is entered into a community program grants database and analyzed annually to provide input for summative and process evaluation. 16 community initiated grants were awarded totaling \$37,561 (2001-2005) (**Appendix G**). Programs reached 14,216 people. Detailed evaluation reports are provided in (**Appendix G**) and include information about age groups targeted, ethnicity, and socio-economic status of program participants. Projects for the year 2006 have not been completed; therefore evaluation data are not available. These 2 projects are in Colorado and Utah and total \$3,475.

Networking activities: In 2004, CICRC Associates were contacted by staff from the Children's Safety Network (CSN) to assist in the development and to participate in a PHS Region VIII Injury Network. CICRC staff has made presentations to the network related to regional activities and identified and scheduled speakers on topics of interest. Quarterly calls were held beginning in January, 2005.

In conjunction with the CDC 2005 Injury Conference, CICRC Associates developed a Colorado Partners in Injury program (May 10, 2005) to meet others working in injury prevention and developed a directory of the individuals involved in injury prevention and control in Colorado which can be found at the following website: <http://www.cdphe.state.co.us/pp/injuryprevention/CIPDirectory.pdf>

Fort Collins Injury Prevention Partners Group, Larimer County, Colorado: CICRC Associates met with the Trauma team from Poudre Valley Hospital to discuss developing a local network of injury program professionals. In November 2004, the first meeting included representatives from: Police; Sheriff; State Patrol; Fire; Poudre School District (Early Head Start, Head Start, Student Assistant Programs); Suicide Resource Center of Larimer County; Crossroads Safehouse; Volunteers of America; Team Fort Collins; Reduce Intoxicated Driving; Poudre Valley Hospital Health Care System Trauma Team; Healthy Kids; SAFE KIDS Larimer County Coalition; Aspen Senior Club; and CICRC. The group has continued to meet quarterly.

Technical Support and Consultation: Evaluation and Community Projects:

Prevent Alcohol and Risk-related Trauma in Youth (PARTY), Loveland, CO: The PARTY program which began in 1999 is a collaborative effort between McKee Medical Center, Thompson Valley Emergency Medical Services, Loveland Police Department, and the Larimer County Coroners Office. The PARTY program is a "hands on" program designed to educate high school students on the consequences of drinking and driving and taking unnecessary risks. Evaluation data were obtained each session of program but had never been analyzed. At the time the evaluation report was prepared by CICRC Associates a total of 4041 students primarily in 9-12th grade had completed evaluations. A detailed report of analysis of evaluation data obtained to the staff at McKee Medical Center (**Appendix H**).

SOAR High School, Association of Recovery School, Broomfield, CO: The SOAR High School is an alternative school for adolescents with alcohol and drug addictions who have chosen to be in recovery. The staff at SOAR administered a Youth Risk Behavior Survey (YRBS) to students in March 2005. The YRBS was developed by the CDC to monitor the health and health behaviors of students in high schools throughout the United States. Health behaviors are one area that can serve as indicator of how students are taking care of themselves in recovery. CICRC Associates conducted an analysis of the YRBS survey and provided a detailed report to school administrators. Based on the results, the staff will develop programs to address interpersonal violence as well as other behavioral risk factors identified (**Appendix H**).

Suicide Resource Center of Larimer County, CO: The Suicide Resource Center (SRC) works to prevent suicide in the communities within Larimer County. They offer: Community Education, School Programs, Depression Support and Grief Support. The CICRC has provided funds and technical support evaluating several suicide prevention training programs and has worked to develop an Action Plan to improve suicide prevention programs in Larimer County (**see Specific Aim 6**).

Assessing Japanese mothers' attitudes, behaviors and subjective norms regarding car safety seat use: In spring, 2005 a Japanese graduate student (Itsumi Kakefuda) from the CICRC contacted a former colleague to determine if there were projects in Japan on injury prevention. Her colleague had received a small 3-year grant to study car seat use. The student developed a questionnaire which was distributed to 971 mothers in the Kanagawa prefecture and received 552 (57%) responses. Ms. Kakefuda presented results to her colleagues in Japan in July, 2006 (**Appendix H**). Currently plans are being made to have the Japanese team visit the CICRC in September, 2006.

Specific Aim 4: Utilize existing data to identify injury patterns.

Survey State Injury Surveillance Capacity: To assess injury data available in PHS Region VIII, the CICRC conducted a survey of State and Territorial Injury Prevention Association (STIPDA) members and state epidemiologists in Colorado, Montana, North Dakota, South Dakota, Wyoming and Utah in 2002-2003. Information was obtained on injury surveillance systems, barriers to the development of surveillance systems, best contact person for more information about the surveillance systems, the types of surveillance systems, the source of injury data, the availability of data to researchers, and a contact for access to the data. Interviews were completed in all states in the region. The barriers mentioned to the development of injury surveillance systems were money, personnel, data sharing issues, and absence of mandatory reporting. Due to wide variation in reporting systems and availability of data with others, establishing a uniform system across the region is not feasible at this time.

Colorado Health Information Dataset (CoHID): CICRC funds were provided to CDPHE staff to add a module containing injury hospitalization statistics beginning in August, 2003. CoHID is a free, web-based query system containing 9 public health data sets. The module can be found at: <http://www.cdphe.state.co.us/cohid>.

Colorado Child Health Survey: In 2004, CDPHE staff implemented an annual health survey of children in Colorado. Previously children were the only population for which no health survey data were collected. The Child Survey is conducted in conjunction with the Colorado Behavioral Risk Factor Surveillance Survey

(BRFSS). At the end of the BRFSS interview, respondents are asked if there they have a child in the target age range (1-14 years) and if so, are asked to participate in the child survey. Funding from the CICRC has been provided annually to add injury and safety practice questions to the survey instrument.

Injury in Colorado: In 2002, funding from the CICRC assisted in generating the first *Injury in Colorado* report, a comprehensive analysis of injury death and hospitalization data. An update of the report was published in August 2005. Three hundred print copies and 200 CDs have been distributed throughout the state to injury prevention specialists, local health departments and public health nursing services, trauma hospitals, county coroners, county commissioners, members of the State EMS and Trauma Advisory Council (SEMTAC), EMS providers and others. The report is available on the web:

<http://www.cdphe.state.co.us/pp/injepi/InjuryinColorado/injuryincolorado.html>.

Media Project: The purpose of this study is to use an existing dataset of a representative sample of national media (*Alcohol risk perceptions and the media, NIH/NIAAA, PI Michael Slater*) to determine if newspapers can provide useful information to enhance motor vehicle crash injury surveillance. The focus of analysis will be to determine if newspaper articles contain variables coded in the Fatal Accident Reporting System (FARS). There are 768 newspaper reports available where motor vehicles were mentioned. Coding guides based on FARS were developed and reliability of use by two graduate students was determined using an independent sample of newspaper articles from Larimer and Weld counties; coding was modified to improve reliability prior to abstracting information from the database. Analysis is underway.

Specific Aim 5: Increase and diversify CICRC funding sources for injury research, community-based programs, education and training.

CICRC Associates are actively involved in seeking funds to conduct research on injury prevention and control. The synergy developed by interactions across the disciplines has lead to a substantial increase in funding from sources other than the CICRC. A list of CICRC Associate submitted and funded projects is in **Appendix I**. A total of 68 projects were submitted to 24 different funding agencies. These projects included research, community programs, and education/training grants totaling \$40,501,406; \$21,288,781 was funded in 38 projects (60.3% success rate); and \$2,299,678 in requests is pending in 5 projects.

Specific Aim 6: Disseminate information about injury prevention and control.

Dissemination of information is done in a number of ways including peer-reviewed publications, book chapters and monographs (**Appendix J**), maintenance of a website (with many sections available in Spanish as well as in English) [<http://psy.psych.colostate.edu/CICRC/spanishinjurymaterialsspanish.html>], presentations at local, state, national and international meetings, and other activities which are described throughout this progress report such as the publication of the *Injury in Colorado* reports. Additional activities include interviews to media including newspapers, magazines (e.g. Popular Science) radio (e.g. NPR, Marketplace, Canadian Public Broadcasting) and television. A total of 89 peer-reviewed papers were published or in press by CICRC Associates between 2001-2006 in journals including Injury Prevention, the American Journal of Public Health, the American Journal of Preventive Medicine, JAMA, Annals of Epidemiology, the Journal of Epidemiology and Community Health, Annals of Emergency Medicine and Brain Injury. A total of 21 book chapters and monographs were published. A total of 100 presentations were made at local, state, national and international conferences. Research conducted at the CICRC has resulted in several awards and honors: Graduate students in Occupational Therapy (Ord G, DeKruif K, Carroll K, and Fazzan J.) won a Student Research Award at the Rehabilitation Engineering Society of North America Annual Conference in 2004. Stallones L, Gunderson P. Epidemiological perspectives on childhood agricultural injuries within the United States. *Journal of Agromedicine* 1(4):3-18, 1994. was re-published as an Editor selection of best research papers published in the first 10-years of the *Journal of Agromedicine*. Stallones, L., Beseler, C. Farm work practices and farm injuries in Colorado. *Injury Prevention* 9:241-244, 2003. Received a National Institute of Farm Safety Research (2005) award for making a major contribution to research on the prevention of farm injuries.

Three on-going projects of the CICRC to disseminate injury prevention programs are described below.

CICRC Bicycle Safety Program: In 1999 there were two bicycle-related deaths in Larimer County. Both individuals were hit by cars and neither was wearing a bicycle helmet. As a result, CICRC Associates began a concerted effort to address bicycle safety in the county. The goal of the bike safety program is to increase the use of helmets and improve bike safety in Larimer County. Activities undertaken in 2000-2002, included: developing a list of ordinances related to bicycle helmet use; a televised community forum; mapping bicycle-

motor vehicle citations/injuries in Ft Collins; community educational programs and events; a newspaper OP-ED article; and 3 informational sessions with Ft Collins City Council urging them to consider a bicycle helmet ordinance. In 2004, an observational study was conducted to estimate the percentage of bicycle riders (48% of riders) wearing helmets. Due to the lack of success with the City Council, we conducted a Community Readiness Survey in Larimer County to assess the community readiness to engage in increasing bicycle helmet use through prevention programs. This survey was used as a Master thesis by Ms. Kakefuda (Applied Social Psychology).

CICRC Migrant Injury Prevention Program: Since 1998, CICRC Associates have worked closely with two community programs involved with improving health and safety among migrant worker populations in Colorado. The Migrant Accident Prevention Program (MAPP) of Salud Clinics has been supported in part, by CICRC funding since 1998 and since 2001 has served more than 4,000 migrant and seasonal workers and their families. Activities include: health and safety fairs; needs assessment among the migrant farm worker population; and studies each year of over 12,000 clinic visits to evaluate traumatic injuries. Car seats, bike helmets and smoke alarms are provided to health fair participants. Agreements between Salud Clinic, Colorado and Guanajuato, Mexico are in place to coordinate prevention information to migrant workers that includes promoting the use of seat belts and car safety seats as migrants travel to and from Mexico. Another partner in the CICRC program is Centennial Board of Cooperative Educational Services (CBOCES), a non-profit organization that serves 12 school districts in 3 counties in Northern Colorado and provides services to migrant and homeless children and their parents. CICRC funding has supported staff training related to injury prevention (first aid, safety, pesticide poisoning, drug/alcohol abuse, prevention/recognition of child abuse, domestic abuse and assaults), parent education and provided bike helmets, car safety seats, first aid kits, flashlights, fire extinguishers, and smoke alarms.

CICRC Suicide Prevention Program: Dr. Stallones submitted a grant proposal for a Suicide Prevention Research Center (NIH/NIMH) that was not funded but provided the basis for expanding suicide prevention activities. The Executive Director of the Suicide Resource Center (SRC) of Larimer County, CO requested an evaluation of a school-based suicide prevention program which resulted in a seed grant awarded to Dr. Peter Chen (Psychology Department, CSU). The study made two critical contributions to CICRC programs. The first was the development and application of an innovative method to evaluate impact of an on-going program and the second was the identification of barriers, as reported by high school students, to implementing the help seeking behaviors targeted in the training program. Results of the evaluation have been used to improve the training program. In addition, a community forum entitled: *Suicide Prevention in Secondary Schools: Accomplishments and Challenges* was held in April, 2006 to discuss current prevention efforts, barriers to youth seeking help, and future strategies to improve efforts (during the period 2005-2006 4 high school students from one high school in Fort Collins committed suicide). A follow-up meeting was held to develop an Action Plan for future activities. Concurrently, meetings were held at CSU to develop a grant application to SAMSHA to enhance the suicide prevention activities on the college campus including student and faculty services (in a two year period 2 faculty members committed suicide). The project was not funded, but the CICRC funded a graduate student to develop an evaluation plan for the Resident Assistant (RA) Gatekeeper Training program conducted by the SRC (during the summer, 2006 a graduate student at CSU committed suicide). Preliminary findings suggest that RAs need training on standard operating procedures for emergency situations in Resident Halls, CSU policies for dealing with a suicide crisis, confidentiality issues about involving friends and family, and the specific responsibilities of RAs as gatekeepers. In 2005-2006, a CSU chapter of Active Minds, a national student organization, was established and set up support groups, panel discussions and showed films about depression; Dr. Stallones is the faculty advisor for the group. The process to integrate suicide prevention resources for faculty has not been as successful as the student-related activities.

Specific Aim 7: Conduct ongoing formative, process, impact and outcome evaluation of the CICRC.

The evaluation plan and procedures were adopted in 2001. Measurable objectives were developed for each aim and evaluation has focused on these aims and objectives. Detailed reports are prepared annually by Dr. Jeffrey Gliner (**Appendix K: Example of Annual Evaluation Report**). Evaluation is currently underway of changes in attitude, knowledge and beliefs from five intervention projects supported by the CICRC. These projects examined driver anger, falls in the elderly, youth violence, suicide prevention in the schools, and rehabilitation for individuals with traumatic brain injury. Lack of integration between the large research projects and the CICRC Core activities was identified as an issue. Progress on these projects was excellent, but more

integration was needed. This was addressed by the adoption of specific injury priority areas. These were used to guide the Ad-Hoc Grant Review Committee and the Internal Advisory Board in selection of the research proposals included in this competitive renewal.

Specific Aim 8: Promote the development of new investigators in injury prevention and control research.

Seed Grants Program (pilot projects): A formal process for soliciting and selecting the small grants funded by the CICRC was developed in 2000-2001. The Internal Advisory Board identify new investigators with an interest in developing injury research projects and annual Medline searches are conducted to identify researchers in the region who are publishing injury-related work. Seed grant applications are solicited from these individuals. Application, review, and evaluation materials have been developed and are shown in **Appendix L**. Submissions are accepted throughout the year until the money allocated has been committed. Projects can be up to \$25,000 in total costs with a project period of one year. The Internal Advisory Board conduct scientific evaluation of the submitted proposals during the bi-monthly teleconference calls. Feedback is provided to all applicants who are allowed one re-submission responding to the critique provided. This process is viewed as an opportunity to mentor new investigators. If the Internal Advisory Board finds the changes unresponsive to the critique, applicants are informed they will not receive funding. In 2001-2006, a total of 36 projects were submitted; 21 projects were funded (\$358,953); 18 have been completed; 3 are currently being conducted (**Appendix L**). These projects have resulted: \$5,430,528 in grants (n=12) submitted to external funding agencies; \$1,585,165 in grants (n=3) awarded; and \$1,485,601 million in grants (n=3) pending (e.g. Robert Wood Johnson, Housing and Urban Development (HUD), CDC/NIOSH; SAMSHA). The success rate for grant submissions is currently 33.3%. This program has contributed to the success of **Specific Aims 2, 5, 6 & 9**.

Mentoring New Investigators: In addition to mentoring through the seed grant program, CICRC Associates actively mentor fellows and junior faculty interested in injury-related research. Dr. DiGuseppi was a named mentor on a CDC-funded New Investigator award to Dr. Lisa Brammer and on an NIH K23 award submitted (not funded) by Dr. Lauren Frey. Dr. Stallones was a named mentor on a CDC New Investigator award submitted (not funded) by Dr. Pamela LeMaster.

Specific Aim 9: Conduct high quality, innovative research in acute care, prevention, and rehabilitation of injuries.

RESEARCH CORE

Two small and two large research projects included in the 2001 competitive renewal received direct funding from the CICRC and are described below.

Title: COMMUNITY READINESS AND REHABILITATION SERVICES FOR INDIVIDUALS WITH TRAUMATIC BRAIN INJURY IN RURAL COLORADO AND WYOMING

Project Director/Lead Investigator: Pat Sample, PhD.

Institution: Department of Occupational Therapy, Colorado State University

Area of research: Rehabilitation

Category/duration: Small project; 2 years

Cost: \$84,421 (direct); \$37,989 (indirect)

Key Words: Traumatic Brain Injury, Rehabilitation, and Rural Service Delivery

Brief Summary of Project: The long-term goal of this project is to demonstrate the usefulness of the Community Readiness Model in rural areas to assist them in examining their formal and informal systems of rehabilitation care for individuals with brain injury, and to assist them in identify and addressing gaps in needed services. The Community Readiness Model, is designed to assess the community interest, involvement, and concern about programs related to specific topics such as prevention of traumatic brain injuries (TBIs) or prevention of playground injuries, and was adapted in this study to address rehabilitation and long-term community support systems for people with TBIs in rural areas.

Description of Major Findings: Thematic analysis of focus groups in Wyoming revealed four themes: funding for services, linking of services, community awareness, and behavioral support. In Colorado the four themes were: specialists, transportation, financial hardships, and independent living assistance. The Wyoming community increased a level of readiness in the post interview, but Colorado did not.

Significance of Findings: Although both rural communities were in need of more effective and accessible re-entry services for people with TBIs, each community was unique in its level of motivation, involvement with the issue, and perception of re-entry service needs of TBI patients. The Community Readiness Model was a helpful tool in describing these differences.

Publications: None.

Success Stories: In a follow-up discussion with the Director of the Wyoming Brain Injury Association, the researchers found that state agencies had held a series of meetings with participants to establish new policies for resources and referral services for TBI patients in Wyoming.

Title: ALCOHOL-IMPAIRED DRIVING: REGISTER OF CONTROLLED STUDIES
Project Director/Lead Investigator: Carolyn DiGuseppi, MD, MPH, PhD
Institution: University of Colorado at Denver and Health Sciences Center
Area of research: Prevention
Category/duration: Small project; 4 years
Cost: \$187,196 (direct); \$87,138 (indirect)

Key Words: Alcohol-impaired driving, motor vehicle crashes, motor vehicle occupant injury

Brief summary of project: This project is designed to develop a data base from which evidence based research on injury interventions, a priority need (Bonnie et al, 1999), related to drunk driving can be conducted and disseminated. Drunk driving is a significant problem in rural areas and among a number of under served ethnic and minority populations. Since the project start-up to date, we have successfully developed and established a register of controlled evaluation studies of interventions designed to reduce alcohol-impaired driving. The register is also being tested through the conduct of a systematic review to evaluate the effect of enhanced enforcement on alcohol impaired driving and resulting motor vehicle crashes. To date 30 eligible controlled studies have been identified for this review and their data have been extracted and entered into a relational database created for the study. Analysis is on-going.

Description of Major Findings: Our primary goal was to apply an objective method of search strategy development to the creation of a sensitive, precise, and feasible approach that will identify controlled studies of alcohol-impaired driving interventions. Application of this method resulted in identification of search strategies with adequate sensitivity but poor precision; all sensitive searches resulted in retrieval of $\geq 100,000$ citations from the Web of Science® databases, a number which could not feasibly be screened with existing resources. Modifications to the identified strategies resulted in a strategy with sensitivity of 80.0% and precision of 4.4% that retrieved 17,565 citations. Against a validation set, sensitivity was 85.7% and precision 3.5%. We conclude that objective methods developed for search strategies to identify systematic reviews can be applied to a topic-related search strategy, but in order to accommodate the multidisciplinary nature of drunk driving and perhaps injury prevention topics, these methods must be modified to maximize sensitivity, precision, and feasibility. Using this search strategy, we have searched 10 databases and screened more than 30,000 potentially eligible citations, from which 240 controlled studies of alcohol-impaired driving interventions have been identified, coded, and included in the register.

Significance of Findings: The method used to develop a search strategy for the alcohol-impaired driving register may be used to improve the quality of systematic reviews on other topics relevant to injury prevention and control. Ultimately, by improving the comprehensiveness of included studies, a register of drunk-driving prevention studies that has been created by employing an objectively-derived search strategy will help to improve the quality of systematic reviews of drunk-driving prevention interventions. Such reviews can identify effective practices which should be more widely used and disseminated, as well as ineffective practices that should be discontinued. The availability of such information will promote better prevention practices in this area.

Publications: Van Bramer LD, Goss C, Lowenstein S, DiGuseppi C. Increased police patrols for preventing alcohol-impaired driving [protocol]. *The Cochrane Database of Systematic Reviews* 2005, Issue 2; Goss C, Lowenstein S, Roberts I, and DiGuseppi C. (in press) Identifying controlled studies of alcohol-impaired driving prevention: Designing an effective search strategy. *Journal of Informational Sciences*.

Success Stories: Because the register is relatively new, its use has been limited; however, the project has received an enthusiastic response from several agencies and organizations, particularly from state departments of transportation and public safety.

Title: UNDERSTANDING AND TREATING HIGH ANGER DRIVING FROM RURAL AND NON-RURAL BACKGROUNDS

Project Director/Lead Investigator: Jerry Deffenbacher, PhD
Institution: Colorado State University
Area of study: Prevention
Category/duration: Large project; 6 years
Cost: \$559,428 (direct); \$242,459 (indirect)

Key Words: anger, driving, intervention, coping, aggression, risky behavior

Brief summary: The study has focused on angry drivers and has had four related foci. The first assessed intergenerational differences comparing college students with their parents to evaluate the relationship between parental driving anger and driving anger in offspring. The second addressed the relationships between driving anger comparing rural and urban college students. The third is a large study of several interventions to reduce anger while driving (e.g. applied relaxations, cognitive-relaxation coping skills training, Beck's cognitive therapy, behavioral rehearsal of aggression-incompatible and safe driving strategies). The fourth assessed high anger, denying drivers, low anger, problem denying drivers, and high anger, problem admitting/counseling seeking drivers.

Description of major findings: Parent report less hostility, anger and risky driving compared to offspring. No correlations were found between parental anger, driving behavior and offspring. No differences were found between rural/urban community college students on driving/anger variables. Significant treatment effects were found and maintenance of effects was found to persist a year later.

Significance of major findings: The interventions were equally effective in reducing driving anger, aggression and risky behavior and the effects were maintained up to a year after intervention.

Publications: Deffenbacher, J.L., Richards, T.L., Filetti, L.B., & Lynch, R.S. (2005). Angry drivers: A test of State-Trait theory. *Violence and Victim*, 20(4), 455-469; Deffenbacher, J.L., White, G.S. & Lynch, R.S. (2004). Evaluation of two new scales assessing driving anger: The driving anger expression inventory and the driver's angry thoughts questionnaire. *Journal of Psychopathology and Behavioral Assessment*, 26(2), 87-99; Deffenbacher, J.L. (2003). Angry college student drivers: Characteristics and a test of state-trait theory. *Psicologia Conductual*, 11, 163-177; Deffenbacher, J.L., Deffenbacher, D.M., Lynch, R.S., & Richards, T.L. (2003). Anger, aggression, and risky behavior: A comparison of high and low anger drivers. *Behaviour Research and Therapy*, 41, 701-718; Deffenbacher, J.L., Filetti, L.B., Richards, T.L., Lynch, R.S., & Oetting, E.R. (2003). Characteristics of two groups of angry drivers. *Journal of Counseling Psychology*, 50, 123-132.; Deffenbacher, J.L., Lynch, R.S., Filetti, L.B., Dahlen, E.R., & Oetting, E.R. (2003). Anger, aggression, risky behavior, and crash-related outcomes in three groups of drivers. *Behaviour Research and Therapy*, 41, 333-349; Deffenbacher, J.L., Petrilli, R., Lynch, R.S., Oetting, E.R., & Swaim, R.C. (2003). The driver's angry thoughts questionnaire: A measure of angry cognitions when driving. *Cognitive Therapy and Research*, 27(4), 383-402; Deffenbacher, J.L., Filetti, L.B., Lynch, R.S., Dahlen, E.R., & Oetting, E.R. (2002). Cognitive-behavioral treatment of high anger drivers. *Behaviour Research and Therapy*, 40, 895-910; Deffenbacher, J.L., Lynch, R.S., Oetting, E.R., Swaim, R.C. (2002). The driving anger expression inventory: A measure of how people express their anger on the road. *Behaviour Research and Therapy*, 40, 717-737; Deffenbacher, J.L., Lynch, R.S., Deffenbacher, D.M., & Oetting, E.R. (2001). Further evidence of reliability and validity for the Driving Anger Expression Inventory. *Psychological Reports*, 89, 535-540; Deffenbacher, J.L., Lynch, R.S., Oetting, E.R., & Yingling, D.A. (2001). Driving anger: Correlates and a test of state-trait theory. *Personality and Individual Differences*, 31, 1321-1331.

Title of Project: IGF AND BRAIN INJURY
Project Director/ Lead Investigator: Ishii, Douglas N. (Project 1)
Institution: Colorado State University
Area of study: Acute Care
Category/duration: Large project; 6 years
Cost: \$592,745 (direct); \$259,254 (indirect)

Key Words: neurotrophic factors, insulin-like growth factors, brain injury, learning and memory, dementia
Brief Summary of Project: Cognitive impairment is a devastating consequence of brain injury following a variety of insults including head trauma, stroke, Alzheimer's Disease (AD) and Diabetic Dementia. These

disparate insults may converge on common mechanisms leading to learning/memory disorder and brain cell damage. The overall goal is to determine whether systemically administered insulin-like growth factors (IGF) can cross the blood-brain-barrier (BBB) and prevent or reduce injury to the central nervous system.

Significance of Findings: Physiological conditions with reduced IGF levels, such as diabetes, AD and head trauma may lead to cognitive disturbances. Consistent with this interpretation, diabetic rats with reduced IGF levels have cognitive disturbances that were corrected by IGF replacement therapy independently of ongoing hyperglycemia. The systemically administered IGF was active across the BBB. The data also showed that there is a disturbance in the brain protein regulatory pathway in diabetic rats involving reduced levels of rRNA, mRNA and protein content in association with brain atrophy. Where severe and of sufficient duration, this may result in cell loss shown by reduced brain DNA content. IGF may cooperate with insulin to maintain brain mass. Because IGF was effective despite hyperglycemia, the impaired learning/memory was most likely not caused by loss of glycemic control, suggesting that a reduction in IGF levels may be an important mechanism of cognitive disturbance in non-diabetic conditions.

Publications: Pulford, B.E., & Ishii, D.N. (2001). Uptake of circulating insulin-like growth factors (IGFs) into Cerebrospinal Fluid appears to be independent of the IGF receptors as well as IGF-binding proteins. *Endocrinology*, 142(1), 213-220. Lupien, S.B., Bluhm, E.J., & Ishii, D.N. (2003). Systemic insulin-like growth factor-I administration prevents cognitive impairment in diabetic rats, and brain IGF regulates learning/memory in normal adult rats. *Journal of Neuroscience Research*, 74, 512-523; Kummer, A., Pulford, B.E., Ishii, D.N., & Seigel, G.M. (2003). Des(1-3)IGF-1 treatment normalizes type 1 IGF receptor and phospho-Akt (Thr 308) immunoreactivity in predegenerative retina of diabetic Rats. *Experimental Diabetes Research*, 4, 45-57; Ishii, D.N., & Lupien, S.B. (2003). Insulin-like growth factor replacement therapy for diabetic neuropathy: Experimental basis. *Experimental Diabetes Research*, 4, 257-269; Ishii, D.N., & Lupien, S.B. (2003). Insulin-like growth factor replacement therapy for diabetic neuropathy: Experimental basis. *Experimental Diabetes Research*, 4, 257-269; Lupien, S.B., Bluhm, E.J., & Ishii, D.N. (2006). Effect of IGF-I on DNA, RNA and protein loss associated with brain atrophy and impaired learning in diabetic rats. *Neurobiology of Disease*, 21, 487-95.

Grant Selection for the 2006 Competitive Renewal Application: In order to select grant projects for inclusion in this application, applications (including detailed proposal abstracts with budgets) were solicited from investigators identified throughout the region including Montana, North Dakota, Utah, Wyoming, South Dakota and Colorado (**Appendix M**). An Ad Hoc Review Committee was formed to review the applications. The committee included: Dr Carol Runyan, Dr. Richard Hoffman, Dr Holly Hedegaard, and Dr. Steven Lowenstein. Dr. Jeffrey Gliner served as Chair. The committee was asked to review the abstracts for scientific quality, significance and feasibility (**Appendix M**). A total of 21 abstracts were received (**Appendix M**). The Committee met; they discussed and scored each of the abstracts. The abstracts, scores, and critiques were then reviewed by the Internal Advisory Board for relevance and fit with the CICRC mission and the priority research areas (Table 2). Five applicants were asked to submit a full proposal for this competitive renewal; one declined. The 4 received are included in this application. An additional three investigators were asked to submit seed project proposals. Of these, one submitted the seed project included in this application.

PUBLICATIONS (NOTE: According to PHS398 instructions the list of publications is not included in page count)

Abboud, P., Heard, K., Al-Mashad, A., & Lowenstein, S.R. (in press). What determines if patients are willing to participate in resuscitation studies requiring waiver of informed consent? *Journal of Medical Ethics*.

Bailey, J.E., Lindsey Barton, P., Lezotte, D., Lowenstein, S.R., & Dart, R.C. (in press). The effect of FDA approval of a generic competitor to OxyContin® (Oxycodone HCL controlled-release) tablets on the abuse of oxycodone. *Drug and Alcohol Dependence*.

Beseler C., Stallones L., Hoppin J., Alavanja, M., Blair, A., Keefe T., Kamel F. (in press) Depression and pesticide exposures in female spouses of licensed pesticide applicators in the Agricultural Health Study cohort. *Journal Environmental and Occupational Medicine*.

Cobb, R.B., Sample, P.L., Alwell, M., & Johns, N. (in press). The effects of cognitive-behavioral interventions on dropout for youth with disabilities: A systematic review. *Remedial and Special Education*.

Cooper, S., Lezotte, D., Jacobellis, J., & DiGuseppi, C. (in press). Does availability of mental health resources prevent recurrent suicidal behavior? An ecological analysis. *Suicide and Life-Threatening Behavior*.

Godfrey, J., Lowenstein, S.R., Hamman, R., & Kocher, M. (in press). Reliability, validity and responsiveness of the Simple Shoulder Test: Psychometric properties in young, active populations. *Journal of shoulder and elbow*

surgery.

Mytton, J.A., DiGuseppi, C., Gough, D.A., Taylor, R.S., & Logan, S. (in press). School-based secondary prevention programmes for preventing violence: update. *The Cochrane Database of Systematic Review*, Issue 3.

Richards, T.L., Deffenbacher, J.L., Rosen, L.A., Barkley, R.A., & Rodricks, T. (in press).

Driving anger and driving behavior in adults with attention-deficit/hyperactivity disorder (ADHD). *Journal of Attention Disorders*.

Sample, P. L., Tomter, H., & Johns, N. (in press). "The left hand does not know what the right hand is doing": Rural and urban cultures of care for persons with traumatic brain injuries. *Substance Use and Misuse*.

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D. RESEARCH DESIGN AND METHODS (Described below are plans for CICRC for the next five years).

During the next five years, the CICRC development will focus on professionalism in all CICRC activities. The emphasis across activities will be on training of CICRC Associates, continued assessment of injury-related problems in the region, continued program evaluation, further integration across disciplines, and continued dissemination of information about efficient and effective injury prevention and control programs. A number of new activities are proposed to continue to meet the mission and goals described in the progress report. There

will be new education and training activities focused on the CICRC Associates to increase skills in evaluation of programs with an emphasis on impact and outcome, in conducting and using systematic reviews to identify evidence based prevention programs, and in integrating the community based participatory action research model through all programs. Further, the development of a collaborative Colorado School of Public Health will provide opportunities for expanding course work and practicum site training in injury prevention and control for graduate students. CICRC Associates will continue to diversify funding sources for education/training, community programs, and research. Increased emphasis on dissemination of effective and efficient prevention programs will be reflected through networking activities (e.g. establishing a PHS Region VIII Bi-Annual Injury Prevention and Control Conference), technical assistance programs, and evaluation of injury prevention programs in the region.

Specific Aim 1: Maintain an organizational structure to ensure effective coordination of the CICRC.

ADMINISTRATIVE CORE

Management/Administrative functions: The organizational structure of CICRC within CSU is shown in Figure 1. CICRC is a recognized Center within CSU and therefore has direct access to the Vice President for Research. Figure 2 contains the organizational structure within CICRC and the names of individuals involved in the specific activities. Dr. Stallones is the Director of the CICRC and will be responsible for maintaining communication with relevant administrators in all institutions involved in the CICRC, the Internal and External Advisory Boards, and all CICRC Associates. She will be responsible for continuing to enhance integration across the activities of the CICRC and for improving the evaluation components of the programs of the CICRC. She will coordinate administrative support and manage the overall CICRC budget. Ms. Gibbs-Long assists with routine reporting, financial management, routine record keeping and maintaining the CICRC network mailing list. A data entry technician will provide support for maintenance of up-to-date records for the evaluation and management of the CICRC. The record system will be updated so quarterly reports (**Appendix N**) from CICRC Associates can be entered directly into an electronic database. Steering committees will direct the programs associated with education and training, community initiated programs, seed project research and the research core.

Internal Advisory Board: Bi-monthly teleconference calls will continue throughout the five years. During the first month of funding and once quarterly during the five years we will have in-person meetings of the Internal Advisory Board. These meetings will be used to discuss current status of goals and objectives and long term goals and objectives rather than addressing the routine operations of the CICRC. In the first year of the project period, all evaluation forms for education/training, community initiated grants, and research programs will be reviewed by the Internal Advisory Board and updated to reflect the increased need to focus data collection on impact and outcome evaluation and to provide more emphasis on the CICRC injury priority areas defined in Table 2. A major focus of activities of the Internal Advisory Board will be better integration across the education/training, community programs, and research activities of the CICRC. The CICRC Seminar series will be reviewed by the Internal Advisory Board and speakers will be identified who can provide information on each of the priority injury topics. The expansion of the Internal Advisory Board to include Professor Bubar will provide input needed related to Native populations in the region and will lead to increased activities over the next 5 years. Written guidelines will be developed for improving community participation in CICRC programs.

External Advisory Board Members (2006-2012): Due to retirement and changes in professional responsibilities, the composition of the External Advisory Committee was modified in 2006. The current and future composition of the committee is: **Richard Hoffman, MD, MPH, Medical Epidemiologist**, Consultant in Public Health Science, Law, and Policy, Denver, Colorado; **Rose Alma McDonald, PhD, Chief Executive Officer**, Katenies Research and Management Services, Hogsansburg, New York; **Dennis Cox, MA, ABS, Mental Health Community Program Officer**, Addictive & Mental Disorders Division, Montana State Department of Public Health & Human Services; **Carol W. Runyan, PhD, MPH, Director**, Injury Prevention Research Center; University of North Carolina, Chapel Hill, North Carolina; **Huiyun Xiang, MD, MPH, PhD, Assistant Professor, Director International Programs**, Center for Injury Research and Policy, Columbus Children's Hospital, The Ohio State University College of Medicine and Public Health, Columbus OH. **Mary Overpeck, MPH, DrPH, Manager, New Mexico Office of Injury Prevention, Santa Fe, New Mexico.** A teleconference call was held on August 16, 2006 to review the progress of the CICRC and to discuss plans for the next five years. Teleconference calls will be held every year during the 5-year project period except in the

third year when an in-person meeting will be scheduled on Denver, Colorado (tentative dates August 15-16, 2009).

Figure 1: Relevant CSU Organizational structure diagram: CICRC within CSU

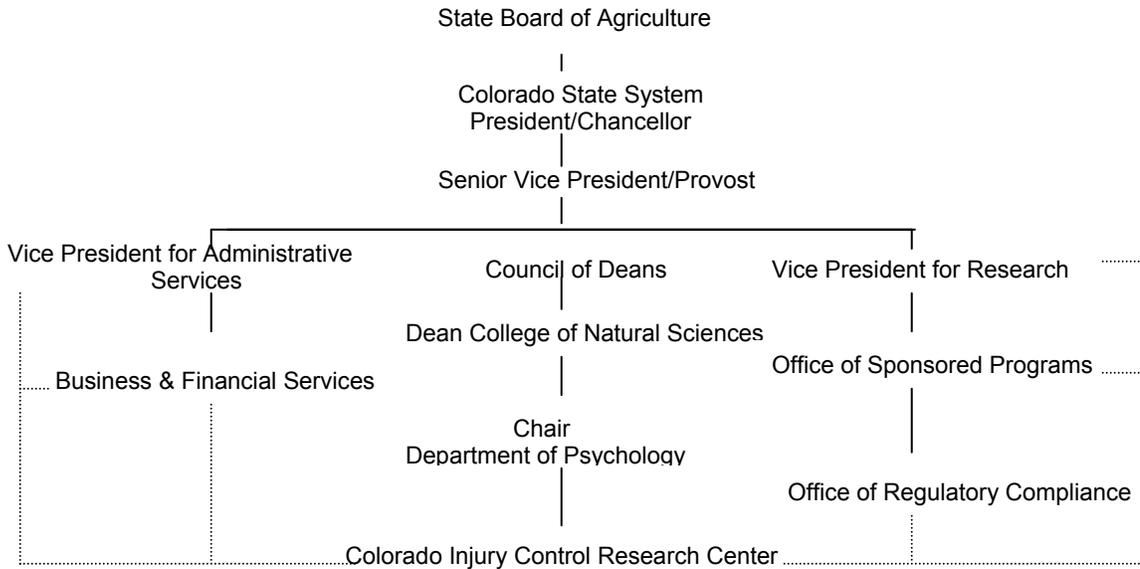
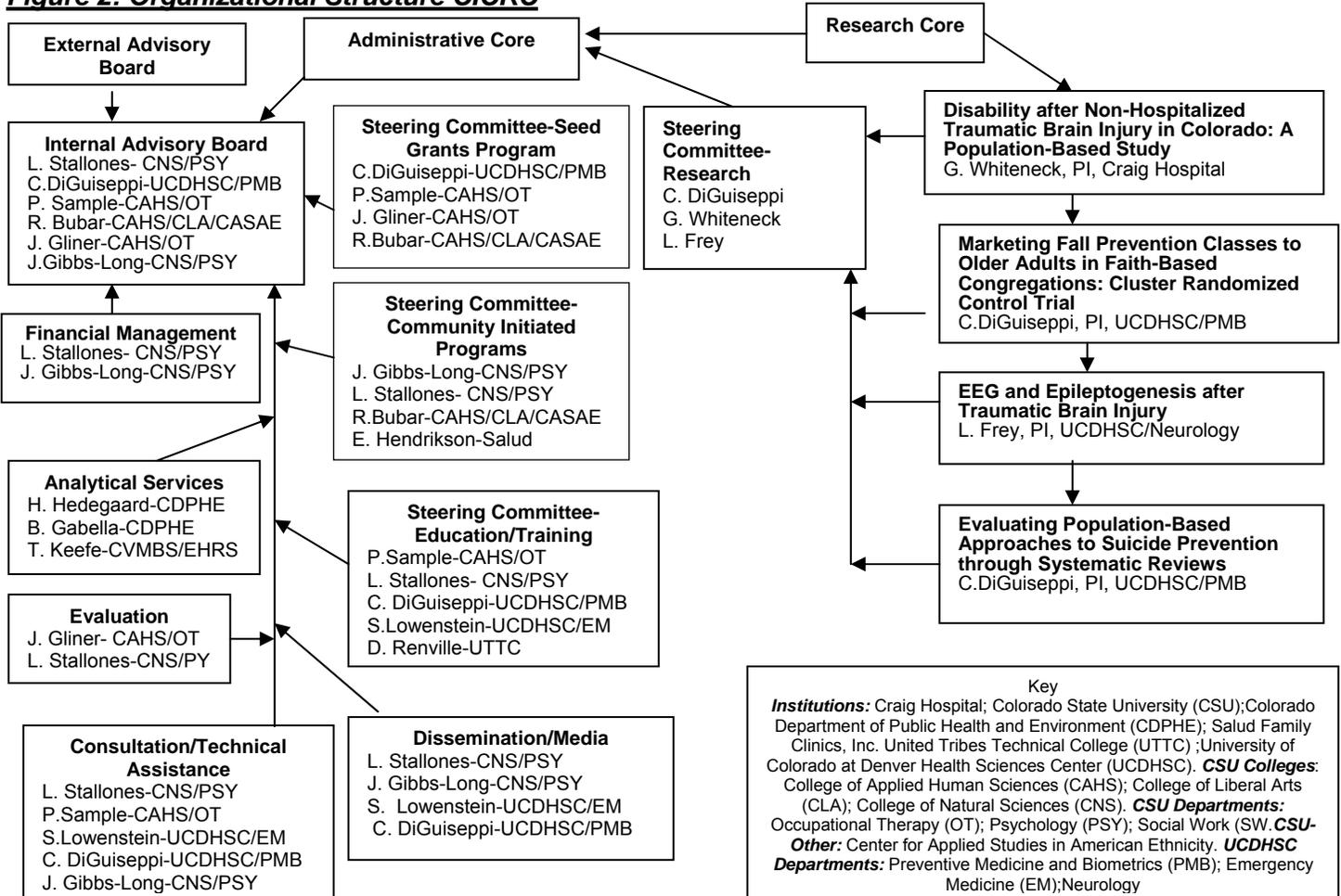


Figure 2: Organizational Structure CICRC



Strategic Planning for the Future: With the continued growth and maturing of the CICRC we anticipate that the Strategic Plan and priority setting conducted in 2002 will require updating. We will hold another Strategic Planning Session, similar to that held in 2002 in the 4th year of the project period (proposed dates June 15-16, 2010). This timing will permit reassessment of achievements related to the current plan, as well as forward planning for subsequent CICRC growth and development. During the remainder of the project we will focus on seed, community, and education projects according to the results of the strategic planning, with continued emphasis on quality proposals with measurable objectives. Participants at the proposed strategic planning session will include the Director, Associate Directors, other members of the Internal Advisory Board, and external advisors representing leadership in academic institutions, community organizations, and public health agencies in the region (specific individuals will be identified closer to the proposed planning session). A Research Agenda will be developed with formal objectives using NCIPC Research Agenda, Healthy People 2010 and CICRC injury priorities (which may be modified).

Specific Aim 2: Promote training and education related to injuries and control of injuries.

Undergraduate and Graduate Education:

1) *Provide formal training to public health and other graduate students in the science and practice of injury epidemiology, prevention and control, and continue to provide training in the context of a new collaborative Colorado School of Public Health (CSPH).* The current plan is to enroll the first group of CSPH MPH students in Fall, 2008 (**Appendix C**). Dr. Stallones is Chair of the CSU Steering Committee to develop the MPH degree program at CSU. In 2005, The Council of Deans at CSU approved the first phase to explore development an MPH degree program. Three of four College Curriculum Committees have approved the MPH degree program proposal and in the fall, the proposal will be taken to the fourth college. After approval is received from that committee, the proposal will be reviewed by the University Curriculum Committee and with that approval, CSU will be in line to admit MPH students in accord with the CSPH plan. Once the initial degree program has been approved at CSU, there will be an opportunity to develop injury prevention education and training within the CSPH program and develop practicum sites for placement of MPH students. A list of currently offered courses at CSU, UNC and UCDHSC is listed in **Appendix B**. The syllabus of the Injury Epidemiology and Prevention course offered every other year at UCDHSC is in **Appendix B**; as a course requirement student's prepare a proposal using the CICRC seed project application guidelines. During the next five years, Drs. DiGuseppi and Litt plan to develop a new MSPH courses tentatively titled, "Health and Safety in the Built Environment". The course will focus on the complex interplay among the built environment, injury risk, and environmental health.

2) *Give students from diverse graduate programs exposure to injury prevention through guest lectures and seminars.* Incorporating injury prevention components within a variety of undergraduate courses at CSU allows the development of a larger number of students to consider injury prevention as a career path through graduate training programs, including anthropology, occupational therapy, environmental health (epidemiology and occupational health emphases), biomechanics, safety engineering, exercise and health, sociology, construction management, physiology, psychology and communication and technical journalism. CSU has graduate training programs in all the areas listed above. UCDHSC has graduate degree programs in public health, medicine, nursing, and with the 2004 merger with the University of Colorado at Denver, has added graduate programs in medical anthropology, architecture, criminal justice, health and behavioral sciences, public administration, sociology, and urban design. CICRC Associates will expand efforts to provide guest lectures for students in other programs to awaken their interest in this field.

4) *Expand practicum training in injury prevention and control for graduate students.* The CSPH strategic plan resulted in a proposed Center for Public Health Practice that will link the school and the community and will facilitate internships and practical learning experiences in the community. We will work with community partners to sponsor practicum rotations for public health students, preventive medicine residents, health psychology students, medical anthropology students, and others as needed.

Outreach to Tribal Colleges in PHS Region VIII: There are currently 31 Tribal Colleges in the United States, of these 16 are in PHS Region VIII (Montana, North Dakota, and South Dakota). Many are 2-year programs and all are in remote areas where traditionally there has been limited access to institutions of higher education. In the first year of the project period, these institutions will be surveyed to assess what programs are offered that have injury-related content in the curriculum and to determine interest in having guest lectures on the topic to raise awareness of professional opportunities related to careers in injury prevention and control related

professions. CICRC will continue to provide consultation and technical assistance to UTTC through the established Memorandum of Understanding.

Professional training:

1) *Promote injury epidemiology and prevention as a focus of workforce development and other activities of the Center for Public Health Practice in the proposed CSPH:* The Center for Public Health Practice aims to link the CSPH and the community by providing workforce development and continuing education opportunities in public health. We will work with our partners in injury epidemiology and prevention in state and local departments and community organizations to promote injury prevention and control continuing education training within the Center for Public Health Practice.

2) *Implement an outcome-oriented CICRC Seminar Series:* Bi-monthly seminars will be scheduled throughout the five years. Presenters will include community partners, recipients of seed grants, principal investigators of CICRC research projects, and national leaders in injury prevention and control. Evaluation of the seminar series will begin with the development of an overall plan for the CICRC seminar series. To date the purpose of the seminar has been to increase awareness at CSU, UCDHSC, UNC-CO, and in the community about injury prevention. It is timely to select speakers who address priority injury areas or concerns, and provide more integration across programs within the CICRC through focusing the speaker selection. In the first six months of the project period, attendees will be asked to provide feedback regarding the seminars they have attended but will also be asked to identify topics they are interested in hearing about in upcoming years. The Internal Advisory Board will review this information to develop a panel of potential speakers for future seminars. Basic evaluation will continue by tracking the number of attendees, documenting the professional affiliations of attendees, and assessing participant reactions to the seminars.

3) *Continue to provide financial support for professional meetings and support of conferences:* Money will be set aside in the budget to fund requests for professional education and training. These requests will be reviewed by at least two members of the Internal Advisory Board for fit with the injury priority areas and the mission of the CICRC. In addition, there will be more focus on training CICRC Associates to expand systematic review capacity in injury prevention, to conduct evaluation of programs with a focus on identifying barriers to the adoption and dissemination of best practices.

4) *CICRC Associates will continue to serve on professional panels and planning committees related to professional education and training:* For example, Dr. Stallones is serving on the Local Scientific Planning Committee for the International Congress of Occupational Health to be held in Costa Rica (2008) due to work related to suicide and pesticide poisoning (grant application submitted to NIH/Fogarty) and has been asked to serve on the International Scientific Committee for the 9th World Conference on Injury Control and Safety (2008).

Specific Aim 3: Expand existing community based activities in injury control and prevention.

Community-Initiated Programs: The Community-Initiated grants program will continue to be administered as it has been for the previous five year period with the application procedures described in the progress report (**Appendix G**). The review process will be expanded to include Dr. E. Hendrikson and Professor Bubar. Evaluation forms will be modified to include information related to impact and outcome evaluation.

Networking activities: In 2006, staff support from the CSN was terminated for the PHS Region VIII Injury Network established in 2004. CICRC Associates have taken on the responsibility for maintenance of the quarterly teleconference calls and updating the list of participants (**Appendix O**).

Fort Collins Injury Prevention Partners Group, Larimer County, Colorado: The Partners Group will continue to meet quarterly over the next five years. The focus of the meeting will be educational seminars and workshops addressing topics selected by the group. CICRC Associates will facilitate scheduling meetings (**Appendix O**).

Technical Support and Consultation: Evaluation and Community Projects

The past experience of CICRC with these activities provides evidence that we are structured to respond to requests as they come forward from the CICRC network. With the addition of the PHS Region VIII network it is likely that these activities will increase over the next five years. In programs where it is appropriate, CICRC Associates will use methods developed in the evaluation of the school-based suicide prevention program to evaluate impact of ongoing programs. In consultation with CICRC Network partners, CICRC will conduct a minimum of one Community Readiness interview targeting CICRC injury priorities each year in a community in PHS Region VIII. A mechanism for tracking community capacity related to these activities will be developed and will include tracking of the use of evidence-based injury prevention programs in the region.

Specific Aim 4: Utilize existing data to identify injury patterns.

The focus of the analysis of existing data sets for the next five years will incorporate the Colorado Violent Death Reporting System to develop a comprehensive understanding of suicide and violent deaths in Colorado and use of the safety and injury-risk data collected in the Child Health Survey. As described in the progress report, injury surveillance data in the region is available on a limited basis. CICRC Associates will continue to work with states through the PHS Region VIII network to provide assistance in the development of injury surveillance systems as requested. CICRC Associates will promote use of the STIPDA Injury Surveillance Workshop (ISW) reports to guide the development of injury surveillance systems in PHS Region VIII.

Specific Aim 5: Increase and diversify funding sources for injury research, community-based programs, education and training.

CICRC Associates will expand the current list of funding sources for education and training, community programs, and research with specific attention to agencies that target the injury priorities identified for the CICRC. Technical assistance will be provided to the expanding CICRC Network throughout the next five years.

Specific Aim 6: Disseminate information about injury prevention and control.

A biannual PHS Region VIII Injury Prevention and Control Conference will be held in Ft Collins, Colorado. The conference will be a two-day meeting with a key note speaker, presentations, and workshops designed to enhance networking and dissemination of effective prevention programs. Presentations will be solicited from the states in the region in to form of abstracts. An abstract review committee consisting of a mix of practitioners and researchers from the Region VIII network will select those to be presented. Participants in the Region VIII network will be asked to suggest names for keynote speakers and themes for the conferences for the next five years.

CICRC Bicycle Safety Program: Plans for the next five years are to continue to support community education and activities related to the safe travel to school for elementary schools and bicycle safety programs in the community. Further, we are developing a program to identify issues related to resistance to using bicycle helmets among college students which will be the basis of a dissertation proposal for a graduate student in the Applied Social Psychology degree program (Itsumi Kakefuda).

CICRC Migrant Injury Prevention Program: The program has been largely dependent on two organizations, Salud Family Health Centers, Inc. and CBOCES. The passage of Colorado HBS1023 (effective August 1, 2006), which restricts receipt of public benefits to legal residents or aliens lawfully present in the United States, may have a profound influence on the migrant population in Colorado. It is not clear whether this program will be possible to continue in its current form. This may result in more focus on low-income and homeless in Colorado rather than solely on migrant populations. The activities will continue to address safety related to housing, motor vehicle travel and first aid. Additionally the focus of this program will expand to address more of the Hispanic population in Colorado and CICRC priority injury areas. Based on a monograph prepared by the CICRC Associates in 2000, proportionate mortality ratios (PMRs) among Hispanics compared to other residents in Colorado (1983-1992) were elevated for fire/flame deaths (1.63, 95% CI 1.21, 2.15); motor vehicle deaths (1.12, 95% CI 1.05, 1.20); firearms/intentional (1.84, 95% CI 1.62, 2.08); homicide/hanging (1.74, 95% CI 1.19, 2.46); homicide/stabbing (2.14, 95% CI 1.42, 3.09); poisoning/unintentional (1.58, 95% CI 1.32, 1.89); and poisoning/intentional (1.54, 95% CI 1.13, 2.05). These data provide some areas to increase prevention activities for the Hispanic population in Colorado.

CICRC Suicide Prevention Program: A draft document of the follow-up session to the Community Forum is in **(Appendix P)**. Action items are identified for addressing educational programs in high school and junior high/middle schools, for teacher, staff and parent education and to address the fear of hospitalization, identified as a significant barrier in reporting crises by youth (for themselves and others). This document provides a detailed plan of action which will be addressed over the next five years. Continued work will also include the CSU campus activities that have begun with formal evaluation of gatekeeper training for the CSU RAs, continued support of Active Minds, and continued work to integrate services available and increase awareness on campus with regard to existing campus and community suicide prevention and treatment services.

Specific Aim 7: Conduct ongoing evaluation of the CICRC program.

A logic model and detailed evaluation plan was developed for program input, activities, output, and outcomes of the CICRC programs and will guide the evaluation of the CICRC (CDC, 1999) (**Appendix K**). The CICRC evaluation has two main goals : 1) to assess the CICRC contributions to changes in injury prevention research, education/training, and practice in the communities in PHS Region VIII; and 2) to describe how the specific aims of the CICRC are implemented including injury prevention research, education/training, and practice. Record reviews, students involved in injury research training, attendees of CICRC seminars, seed grants, and submitted grants to other funding agencies are monitored and compared to previous years to determine if growth is occurring in the programs. In the community programs, the number and demographic characteristics of participants are obtained for funded programs and compiled annually. Impact evaluation examines the target population to determine if the program produced changes in attitudes, beliefs, or behaviors. Impact evaluation is conducted through the evaluation forms requested from recipients of grant programs within the CICRC. Where research interventions target behavior, attitude or injury-related events, the data will be used to evaluate the CICRC program.

Undergraduate, graduate, post-docs receiving research training through the CICRC will continue to be tracked. Exit interviews will be conducted with students as they complete training and research activities with the CICRC to assess their satisfaction with the training, to obtain suggestions for improvement in the training experience, and to develop more accurate information to contact the students for the alumni survey. The alumni survey will be updated every other year during the next five years (**Appendix Q**).

Specific Aim 8: Promote the development of new investigators in injury prevention and control research.

Seed Grant Program (seed or pilot projects): The objective of the seed grants program is to increase interest among new investigators in injury related work. The application materials and evaluator forms used to select projects are in **Appendix L**. Applications for funding will be reviewed by the Internal Advisory Board. Based on the availability of funds one to four of these requests will be funded each year. Recipients will be expected to complete the proposed work within a twelve month period, thus allowing new projects to be funded each year. Criteria for selection of projects over the next five years will include relevance to the center mission, potential to lead to RO1 applications, the priority injury topics, and dissemination research. Amount available for each project is \$25,000 or less. Evaluation of the seed grant program will be done with emphasis on whether scientific publications, presentations, theses or dissertations, and applications for further funding resulting from the work done. Recipients will be contacted one year after completion of the project to update publication and funding histories.

Proposed Seed Project Year 1:

(a) Title: Risk factors associated with severe injury and mortality on a rural American Indian Reservation: 1996-2006.

(b) Project Director/Lead Investigator: Tami Jollie-Trottier, PhD

(c) Institution: University of North Dakota, Center for health Promotion and Prevention Research, School of Medicine & Health Sciences

(d) Injury Category: Prevention

(e) NCIPC Research Agenda: Crosscutting issues: C: Identify the costs and consequences of injury and D: Build the research infrastructure; Preventing Intimate partner violence: E: Evaluate the health consequences of intimate partner violence; Preventing injuries in the home and the community: D: Among young children, determine the immediate causes of the most severe and disabling types of falls.

(f) Project Size Category: Seed project

(g) New or Ongoing Project: New project

(h) Total Cost (direct + indirect): \$15,000

(i) Research Training: One undergraduate student (TBN)

(j) Key Words: American Indians, unintentional injuries, intentional injuries

(k) Brief Summary (Abstract) of Project Including Intended Application of Findings

The purpose of the study is examine risk factors associated with severe injuries (defined as those resulting in an amputation, loss of consciousness, major fractures, hospitalizations of 1 day or more; or death) using an Indian Health Service injury database which includes data on approximately 4,000 tribal members injury-related visits and risk factors including demographic characteristics, time of injury, severity, costs, nature of injury, cause of injury, alcohol/drug involvement, and utilization of health care facilities. De-identified archival

data will be obtained for the period 1996-2006 and used to conduct an epidemiologic analysis to identify risk factors associated with severe injuries as a first step to developing an injury prevention program for the Turtle Mountain Reservation in North Dakota.

RESEARCH CORE

Specific Aim 9: Conduct high quality, innovative research in acute care, prevention/control, and rehabilitation of injuries.

The CICRC Research Core will address multiple phases of injury research: 1) foundational research to define and quantify injury problems and their outcomes, in order to support the development of theoretically based interventions; 2) effectiveness research to evaluate interventions aimed at reducing injury and its consequences, employing systematic review and meta-analysis to explore heterogeneity of effects and unintended consequences; and 3) dissemination research, examining methods to encourage uptake and adoption of evidence-based interventions and factors that increase community capacity. Within this framework, the research projects target three CICRC priority areas: traumatic brain injury, older adult falls (a key contributor to TBI among older adults), and suicide. Both large projects address the CICRC mission, with an emphasis on medically underserved populations (Whiteneck) and building community-based partnerships, particularly among Hispanics and rural residents (DiGuiseppi). A research group, coordinated by the Associate Director for Research and including principal investigators, co-investigators, and project students, will meet 3 times a year during the next five years to exchange advice and ideas. Focusing on research projects among the priority areas and providing a forum for input across projects will create opportunities for synergy across the projects and disciplines and may lead to greater impact of research.*

Large Research Projects (2007-2012)

(a) Title: Marketing Fall Prevention Classes to Older Adults in Faith-Based Congregations: Cluster Randomized Controlled Trial

(b) Project Director/Lead Investigator: Carolyn DiGuiseppi, MD, MPH, PhD

(c) Institutions: University of Colorado at Denver and Health Sciences Center; Colorado Department of Public Health and Environment

(d) Injury Category: Prevention

(e) NCIPC Research Agenda: This project addresses two priorities in "Preventing Injuries at Home and in the Community": 1) evaluate strategies for widespread dissemination and implementation of effective interventions to reduce injuries at home and in the community, and 2) develop and evaluate community-based interventions to prevent falls among older, community-dwelling adults and study the dissemination of those programs. This project will evaluate the use of social marketing through faith-based congregations to disseminate and promote participation in balance retraining classes, in order to prevent falls among older adults.

(f) Project Size Category: Large project

(g) New or Ongoing Project: New project

(h) Total Cost (direct + indirect): \$760,020

(i) Research Training: One undergraduate student (TBN)

(j) Key Words: Unintentional Falls; Older Adults; Social Marketing; Exercise; Injury Prevention; Randomized Controlled Trial

(k) Brief Summary (Abstract) of Project Including Intended Application of Findings

Injuries from falls are a leading cause of emergency visits, hospitalizations, and deaths in older US adults, resulting in total lifetime costs of more than \$19 billion in 2000. Fall injuries reduce independence and mobility, and increase the risk of disability and institutionalization. There is good evidence that community-based group exercise classes focusing on strength and balance prevent older adult falls, but uptake by older adults is limited. This study will test a new approach to promote participation in group balance-retraining exercise classes, using social marketing to target older adults in faith-based congregations (FBCs). The proposal addresses national research priorities to evaluate strategies for dissemination and implementation of effective interventions to prevent falls among community-dwelling older adults. Focus groups and key informant interviews will provide a research-based understanding of FBC members aged 60 and older and those who influence them, and explore facilitators and barriers to class participation. With this formative research, a targeted social marketing program, including a 'marketing toolkit,' will be developed to motivate participation. The Health Belief and Transtheoretical Models form the theoretical basis for the social marketing planning process and will guide program design. The marketing program aims to increase class attractiveness, usability,

and uptake by reducing barriers or costs, and using incentives or other benefits to reinforce participation. Sixty-two FBCs, representing varied denominations and communities, will be randomly allocated to intervention (marketing program implementation) or control (no program) groups. Outreach to diverse FBCs will ensure that materials and strategies target potentially hard-to-reach (e.g., Hispanic, rural) populations. The trial will test whether seniors from intervention FBCs are more likely to join balance retraining classes. Factors that may mediate intervention effects will be examined. Secondary outcomes include 1) baseline fall risk among class participants, assessed by physical function tests; and 2) intensity, diffusion, message penetration and acceptability of the marketing program, and persistent facilitators and barriers to class participation, assessed with focus groups, structured interviews, and process measures. If the marketing program is proven to be effective, the methods for its development can inform the development of similar programs with other target audiences. The program itself, including the marketing toolkit, can be tested in other locales and may be widely implemented. Motivating more older adults to participate in exercise classes targeting balance and strength will help to reduce falls. Reducing falls will decrease fall injuries and their serious adverse consequences, including disability and premature death, among older adults.

(a) Title: Disability after Non-hospitalized Traumatic Brain Injury (TBI) in Colorado: A Population-Based Study

(b) Project Director/Lead Investigator: Gale Whiteneck, PhD, FACRM

(c) Institutions: Craig Hospital, *Englewood, CO*; AMC Survey Research Group of the University of Colorado at Denver and Health Sciences Center, *Lakewood, CO*; Ohio State University, Department of Physical Medicine and Rehabilitation, *Columbus, Ohio*

(d) Injury Category: Rehabilitation

(e) NCIPC Research Agenda: This proposal is specifically designed to address the National Center for Injury Prevention and Control's (NCIPC) high priority research agenda item F under Acute Care, Disability, and Rehabilitation to "*Develop and apply methods for calculating population-based estimates of the incidence, costs, and long-term consequences of SCI and nonhospitalized TBI.*"; item C "*Identify risk factors and develop and evaluate interventions for secondary conditions following TBI or SCI, particularly among patients who have not received treatment or rehabilitation at state-of-the-art facilities*"; item M "*Investigate the long-term effects of TBI and SCI on the health and longevity of people with disability from these injuries*".

(f) Project size category: Large project

(g) New or Ongoing: New

(h) Total Cost (direct + indirect): \$750,000

(i) Research Training: None

(j) Key Words: Traumatic Brain Injury, Disability, Outcomes

(k) Brief Summary (Abstract) of Project Including Intended Application of Findings

Traumatic brain injury (TBI) is well recognized as a major public health concern based on the Centers for Disease Control and Prevention (CDC) estimates of 50,000 TBI deaths and 235,000 TBI hospitalizations in the United States annually and at least 5.3 million people currently living in the US with long-term disability resulting from TBI. However, these estimates are derived from surveillance systems focusing on people hospitalized with TBI and they fail to capture the full extent and impact of TBI due to the much larger, less well documented incidence of mild traumatic brain injury (MTBI). Only one in six of the 1.4 million people CDC estimates sustain a TBI of any severity in the US annually are hospitalized. Approximately one-third of the people hospitalized with TBI have long-term disability, but it is unknown what percentage of the 1.1 million people sustaining "mild TBI," who are seen in an emergency department and released without hospitalization each year in the US, also experience long-term disability. If even 10% of non-hospitalized TBI resulted in long-term disability, then the estimate of people with long-term disability after TBI living in the US would more than double. The purpose of this study is to determine the population-based prevalence of long-term disability attributable to TBI of all severities regardless of where or if the TBI was treated. Using a telephone random digit-dialing methodology in a population-based survey in Colorado, up to 5,000 adults, age 18 years and older will be screened for TBI and for a control condition, long bone fracture. Participants who screen positive for one of the two study conditions and a sample of people who have neither condition will be asked to participate in a 30 minute telephone survey to assess outcomes including functional level, disability status, satisfaction with life and other health related questions. A subset of individuals from the main survey (100 reporting TBI in the last five years and 50 not reporting TBI) will be asked to participate in a second telephone survey, the Ohio State University TBI Identification Method Interview. This interview will be independently administered by

trained staff at OSU blinded to the participants' answers to the main survey. The purpose of this interview is to evaluate the strength of the original methodology. Results of these interviews will help evaluate 1) whether brief questions are an adequate self-report strategy to elicit a thorough history of TBI occurrences; and 2) are the TBI incidents elicited by brief questions a reliable reflection of the incidents that would be elicited by a more comprehensive and structured interview? By determining the prevalence of TBI-related outcomes and understanding the risk factors for those problematic outcomes (including the risk factors of severity of injury, treatment pathways, and demographics), planning of effective interventions to improve the lives of people with TBI will be enhanced.

Small Research Project (2007-2009)

(a) Title: EEG and Epileptogenesis after Traumatic Brain Injury

(b) Project Director/Lead Investigator: Lauren Christine Frey, MD

(c) Institution: University of Colorado at Denver and Health Sciences Center

(d) Injury Category: Rehabilitation

(e) NCIPC Research Agenda Item Addressed: The research detailed in this proposal fits within the CDC Injury Center's Injury Research Agenda topic area of Acute Care, Disability, and Rehabilitation. Within this topic, this proposal addresses the specific priority agenda item of identifying risk factors and developing and evaluating interventions for secondary conditions following traumatic brain injury (TBI) or spinal cord injury (SCI) to "reduce the impact or prevent the development of secondary conditions and other adverse outcomes of TBI and SCI."

(f) Project Size: Small project.

(g) New or Ongoing Project: New

(h) Total Cost (direct + indirect): \$135,000

(i) Research training: The Staley laboratory is an active community of both established and junior researchers. Many MD/PhD and post-doctoral fellows receive training in the laboratory and may be involved with this project.

(j) Key words: Posttraumatic epilepsy, traumatic brain injury, lateral fluid percussion injury, epileptogenesis, EEG

(k) Abstract. Each year 80,000 Americans sustain traumatic brain injuries (TBI) that result in disabilities; 5.3 million Americans live with TBI-related disabilities. One such condition, posttraumatic epilepsy, occurs in up to 30% of severely brain-injured patients. Antiepileptic drug prophylaxis after TBI has not been effective, in part because clinical predictors of post-TBI epilepsy are inadequate for effective targeting. In humans, epilepsy after TBI may be predicted by the presence of electroencephalography (EEG). Non-traumatic brain injury models in rodents also suggest that EEG spiking patterns can predict epilepsy development. This project will develop and test a prediction model for the development of epilepsy after experimental traumatic brain injury in rats. Lateral fluid perfusion will create experimental TBI in 42 anesthetized rats, which will be continuously monitored for up to 12 months after TBI to identify features of longitudinal EEG spiking patterns associated with subsequent development of seizures. A model will be developed and tested for accuracy and usefulness at multiple time points after TBI in a blinded trial of experimental TBI in 30 rats. The development of EEG indicators of seizure risk in rats after experimental TBI is readily translatable to the human condition and, if validated in humans, would significantly improve identification of TBI patients at high risk of developing epilepsy. Confirmation of the relationship between EEG spiking and risk of epilepsy in rodents may elucidate the pathophysiological processes underlying epileptogenesis, which can then be used to prevent this serious complication of TBI.

Small Research Project: (2009-2012)

(a) Title: Evaluating Population-Based Approaches to Suicide Prevention through Systematic Reviews

(b) Project Director/Lead Investigator: Carolyn DiGuseppi, MD, MPH, PhD

(c) Institution: University of Colorado at Denver and Health Sciences Center

(d) Injury Category: Prevention

(e) NCIPC Research Agenda Item D: Evaluate the efficacy and effectiveness of interventions to prevent suicidal behavior. This project will contribute to the NCIPC Research Agenda through comprehensive identification of controlled studies of interventions to prevent suicide and suicide attempts, dissemination of identified studies, and systematic review of two suicide prevention strategies.

(f) Project Size Category: Small project

(g) New or Ongoing Project: New project

(h) Total Cost (direct + indirect): \$264,270**(i) Students:** One MSPH degree student (TBN) and one undergraduate student (TBN)**(j) Key Words:** Suicide; Suicide, Attempted; Prevention; Systematic review; Evidence-based Medicine; Meta-analysis; Information Retrieval

(k) Abstract. Suicide is the most common cause of violent death in the US, and the eleventh leading cause of all deaths. The identification of biological, psychological, and socio-environmental risk factors has prompted many disciplines to develop interventions to prevent suicide. National government objectives include identifying and evaluating the effectiveness of suicide prevention programs. Comprehensive identification of studies in the field of suicide prevention is difficult because of the range of disciplines involved, the publication of many studies as government or other internal reports, and the international body of literature on suicide prevention programs. This proposal aims to comprehensively identify and disseminate controlled evaluations of suicide prevention programs, and use the identified studies to conduct two systematic reviews of suicide prevention strategies targeting the high-risk or general population. A sensitive search strategy will be systematically developed and applied to multiple databases that span disciplines relevant to suicide prevention. Results will be screened to identify controlled evaluations of suicide prevention. Unpublished and international literature will be identified by searching gray literature databases, hand-searching conference proceedings, and contacting organizations and experts. Studies identified as eligible will be transmitted to the Cochrane Injuries Group for inclusion in their specialized register and, where applicable, publication in the Cochrane Central Register of Controlled Trials. Systematic reviews of selected population-based suicide prevention strategies will be performed according to the Cochrane Collaboration's guidelines. Results will be combined quantitatively when possible. Reviews will be published in the Cochrane Library. By making a broader domain of evaluation studies publicly accessible, and by conducting systematic reviews of population-based suicide prevention strategies, this project will contribute to the available evidence base for policy makers and health and other professionals to make appropriate decisions about implementation of effective interventions. Public Health Relevance: Many people who commit suicide never seek treatment; therefore interventions that target the general population are needed. This project will search for high-quality studies of suicide prevention programs and evaluate the studies of two population-based suicide prevention programs to determine whether they are effective. Results will help public health professionals decide which suicide prevention programs to use.

Timetable

| Activity | Y01 (Mos 1-6) | Y01 (Mos 7-12) | Y02 (Mos 1-6) | Y02 (Mos 7-12) | Y03 (Mos 1-6) | Y03 (Mos 7- 12) | Y04 (Mos 1- 6) | Y04 (Mos 7- 12) | Y05 (Mos 1- 6) | Y05 (Mos 7- 12) |
|---|---------------------|----------------------|---------------------|----------------------|---------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| 1. Bi-monthly Internal Advisory Board Meetings | x | x | x | x | x | x | x | x | x | x |
| 2. External Advisory Board Meetings | x | | x | | x | | x | | x | |
| 3. Strategic Planning Session | | | | | | | x | | | |
| 4. CSPH- Develop IPC curriculum and practicum experiences for MPH students | | | x | x | | | | | | |
| 5. Conduct survey of IPC curriculum within Tribal Colleges in PHS region VIII | x | x | x | x | | | | | | |
| 6. Develop topics for CICRC seminars | x | | | | | | | | | |
| 7. CICRC Seminars- hold bi-monthly and evaluate | x | x | x | x | x | x | x | x | x | x |
| 8. Review and update Community grant evaluation forms | x | | | | | | | | | |
| 9. Provide community-based prevention grants | x | x | x | x | x | x | x | x | x | x |
| 10. Host bi-monthly PHS Region VIII network teleconference calls | x | x | x | x | x | x | x | x | x | x |
| 11. Conduct PHS Region VIII Conference | x | | | | x | | | | x | |
| 12. Provide technical support and consultation | x | x | x | x | x | x | x | x | x | x |
| 13. Analyze CVDRS data | x | x | | | | | | | | |
| 14. Analyze Child Health Survey data | | | x | x | | | | | | |
| 15. Update funding sources | | x | | x | | x | | x | | x |
| 16. Conduct annual evaluation of CICRC activities and programs | | x | | x | | x | | x | | x |
| 17. Conduct exit interviews with | | x | | x | | x | | x | | x |

| | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|
| students receiving research training | | | | | | | | | | |
| 18. Conduct Alumni Survey | x | | | | x | | | | x | |
| 19. Review seed grant application and evaluation materials | x | | | | | | | | | |
| 20. Solicit and fund seed grants | x | x | x | x | x | x | x | x | x | x |
| 21. Quarterly meeting Research Core | x | x | x | x | x | x | x | x | x | x |
| 22. Monitor CICRC Research Core progress | x | x | x | x | x | x | x | x | x | x |

E. HUMAN SUBJECTS RESEARCH

Protection of human subjects

For the Administrative Core activities:

Colorado Violent Death Reporting System (CVDRS):

1. Human subjects involvement and characteristics:
 - a. All individuals who die in Colorado from homicide, suicide, undetermined intent, and unintentional firearm injuries are included in the CVDRS database.
 - b. Included in the surveillance database are individuals of all ages, both genders, and all ethnic groups in the state.
 - c. Only individuals who die from violent or undetermined intent are included in the database.
 - d. Vulnerable populations are not included.
 - e. Data are compiled at the Colorado Department of Public Health and the Environment (CDPHE). No individual identifying information will be obtained for analysis proposed in CICRC.
2. Sources of materials
 - a. Individuals who are in the CVDRS have all died from violent causes. Records are obtained from death certificates, coroner/medical examiner reports, law enforcement investigations, crime laboratory reports, and firearm trace data. Data are linked at CDPHE and any information provided to CICRC investigators will have no individual identifying information.
 - b. Vital statistics provides information on work-related status, education, demographics and cause of death; Coroner/medical examiner reports provide information on toxicological reports, circumstances of injury, medical history, and manner of death; Law enforcement reports provide information on perpetrators, weapons, risk factors, and criminal history.
 - c. Only CDPHE staff has information on individuals and this information will not be provided to CICRC researchers.
 - d. No new information will be collected for analysis by CICRC researchers.
3. Justification for exemptions: Data are not collected on living human subjects. All data are available to researchers through the CDPHE.
4. Inclusion of minorities and women.
 - a. Women and minorities are represented in the population of Colorado violent deaths as shown in the enrollment table.
5. Inclusion of children.
 - a. Children are included in the population who die in Colorado from violent causes.

Child Health Survey:

1. Human subjects involvement and characteristics:
 - a. Parents of children age 1-14 years in Colorado who have responded to the Behavioral Risk Factor Surveillance System (BRFSS) by telephone each year are asked to answer questions about their children by staff at the CDPHE.
 - b. Included in the database are individuals of children 1-14 years of age, both genders, and all ethnic groups in the state.
 - c. Only children whose parents are willing to respond to the telephone survey are included in the database.
 - d. Vulnerable populations are not included.
 - e. Data are compiled at the Colorado Department of Public Health and the Environment (CDPHE). No individual identifying information will be obtained for analysis proposed in CICRC.
2. Sources of materials

- a. Children whose parents were willing to answer questions by telephone are included in the survey database. Data are compiled at CDPHE and any information provided to CICRC investigators will have no individual identifying information.
- b. The Child Survey includes demographics, height and weight, health insurance, physical activity, sports involvement, learning development and behavioral problems, social problems, use of child safety seats, booster seat, and seatbelts, use of bicycle helmets, and use of helmets when skateboarding/scootering.
- c. Only CDPHE staff has information on individuals and this information will not be provided to CICRC researchers.
- d. No new information will be collected for analysis by CICRC researchers.
3. Justification for exemptions: Data are based on a routinely conducted survey. All data are available to researchers through the CDPHE.
4. Inclusion of minorities and women.
 - a. Women are not included because the survey is based on children. Female children are included in the survey. Minority children are represented in the population of Colorado as shown in the enrollment table.
5. Inclusion of children.
 - a. Children are the target population of the survey.

Seed projects: Before seed projects are funded through the CICRC they must provide documentation of review by the institutional review board from the appropriate institution. For purposes of this application, the seed project included is from the University of North Dakota and is under review with that institution. The information below applies to that project and an enrollment table is included.

1. Human subjects involvement and characteristics:
 - a. All individuals who are included in the Indian Health Service (IHS) Severe Injury Surveillance System (SISS) in the IHS Aberdeen Area region will be included in the study.
 - b. Included in the surveillance database are individuals of all ages, both genders, and all will be tribal members.
 - c. Only individuals who visited an IHS Emergency room, were hospitalized or died as the result of a traumatic injury are included in the database.
 - d. Vulnerable populations are not included.
 - e. Data are compiled by injury prevention specialists (IPS) at the IHS Aberdeen area office. No individual identifying information will be obtained for analysis proposed.
2. Sources of materials
 - a. Individuals who visited an emergency room, had a hospital contact, had a medical record, or had a police report related to a traumatic injury are included in the SISS. Records are obtained from emergency room logs, hospital health contact records, medical records, resource and patient management records, and police reports based on reviews conducted by the IPS.
 - b. Information is available on demographics (patient characteristics), circumstances of injury, and medical care received.
 - c. Only IHS staff has information on individuals and this information will not be provided to researchers.
 - d. No new information will be collected for analysis by CICRC researchers.
3. Justification for exemptions: Data are collected as part of routine injury surveillance conducted by IHS staff. All data are available to researchers through the HIS.
4. Inclusion of minorities and women.
 - a. Women and minorities are included as shown in the enrollment table. Only Native Americans are included in the study.
5. Inclusion of children.
 - a. Children are included in the population injured in the IHS Aberdeen region.

For the two research projects which include human subjects, the detailed information is provided in the specific proposals:

(a) Title: Marketing Fall Prevention Classes to Older Adults in Faith-Based Congregations: Cluster Randomized Controlled Trial

(b) Project Director / Lead Investigator: Carolyn DiGuseppi, MD, MPH, PhD

(c) Institutions: University of Colorado at Denver and Health Sciences Center; Colorado Department of Public Health and Environment.

(a) Title: Disability after Non-hospitalized Traumatic Brain Injury (TBI) in Colorado: A Population-Based Study

(b) Project Director/Lead Investigator: Gale Whiteneck, PhD, FACRM

(c) Institutions: Craig Hospital, *Englewood, CO*; AMC Survey Research Group of the University of Colorado at Denver and Health Sciences Center, *Lakewood, CO*; Ohio State University, Department of Physical Medicine and Rehabilitation, *Columbus, Ohio*.

Data safety monitoring plan

For the Administrative Core activities:

Colorado Violent Death Reporting System: *Not applicable-not a clinical trial*

Child Health Survey: *Not Applicable-not a clinical trial*

Seed projects: *Not Applicable-not a clinical trial*

Targeted enrollment tables

For the Administrative Core activities: *Pages 204-206*

Colorado Violent Death Reporting System: *Page 204*

Child Health Survey: *Page 205*

Seed project: *Page 206*

F. VERTEBRATE ANIMALS: INCLUDED AS PART OF DESCRIPTION FOR PROJECT

(a) Title: EEG and Epileptogenesis after Traumatic Brain Injury; **(b) Project Director/Lead Investigator:** Lauren Christine Frey, MD; **(c) Institution:** University of Colorado at Denver and Health Sciences Center. No other projects have vertebrate animals included.

G. SELECT AGENT RESEARCH

Not applicable for any activities within the CICRC.

H. LITERATURE CITED

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I. MULTIPLE PI LEADERSHIP PLAN

Not applicable.

J. CONSORTIUM/CONTRACTUAL ARRANGEMENTS

The appropriate programmatic and administrative personnel of each organization involved in this grant application are aware of the NIH consortium agreement policy and are prepared to establish the necessary inter-organizational agreements consistent with the policy.

The CICRC is an inter-institutional, interdisciplinary research, training and outreach program that requires involvement of a number of partnering institutions. The consortium/contractual arrangements that are described below reflect the nature of the CICRC.

Institution: University of Colorado at Denver and Health Sciences Center

Role: The investigators described above will be involved in administrative core functions of the CICRC and in research projects that are described in the proposal. The administrative relationships have been in place since 1995.

Institution: Craig Hospital/AMC Cancer Center

Role: The consortium/contractual arrangement with Craig Hospital involves one of the research proposals in the CICRC application.

Institution: University of North Dakota, Center for Health Promotion and Prevention Research

Role: The arrangement with the University of North Dakota will involve a seed grant project described in the proposal. The seed grant projects expand the CICRC partnerships and have been productive in terms of new research areas and identification of new investigators.

K. RESOURCE SHARING

(1) Data Sharing:

This application requests support for analysis of data collected as part of a surveillance system and a survey operated by the CDPHE. Data from the surveillance system and the survey are available to researchers through established procedures based on confidentiality agreements with the CDPHE. Data are provided to researchers by CDPHE with the understanding they will not be shared with third parties, therefore final data sets will not be available to other researchers. However, data sets to be used can be obtained through requests directed at the CDPHE staff.

(2) Sharing Model Organisms:

Not applicable

L. CONSULTANTS/LETTERS OF SUPPORT.