



Pediatric Injury Prevention, Education and Research Program (PIPER)

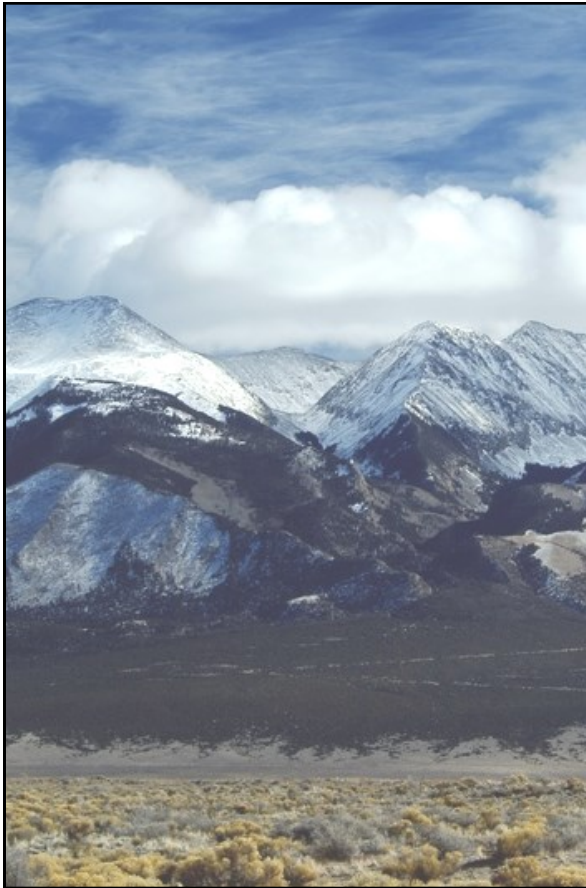
COLORADO SCHOOL OF PUBLIC HEALTH

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

Annual Report 2013

A collaborative initiative of:

Colorado School of Public Health
University of Colorado School of Medicine
Children's Hospital Colorado



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Pediatric Injury Prevention, Education and Research (PIPER) Program

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Welcome

Letter from the Director

Dear Friends and Colleagues,

Initiated in mid-2011, the PIPER Program is designed to contribute to building the field of injury and violence prevention through research, training, and intervention development and evaluation.

In 2013 we completed our faculty recruitment for the PIPER program, adding Ashley Brooks-Russell, MPH, PhD to our team as Assistant Professor of Community and Behavioral Health. Dr. Brooks-Russell completed her Master's training at Case Western Reserve University and her PhD at the University of North Carolina–Chapel Hill. She spent two years at the National Institute of Child Health and Human Development in a postdoctoral fellowship and joined the PIPER team in January 2014, bringing a focus in adolescent risk behaviors, particularly dating violence and risky driving.

We also expanded our core faculty team, inviting three faculty from the School of Medicine -- Drs. Marian Betz, Ingrid Binswanger, and Eric Sigel -- to participate more actively. They come from the Departments of Emergency Medicine (Betz), Internal Medicine (Binswanger), and Pediatrics (Sigel) and focus on key injury problems including suicide (Betz), youth violence (Sigel), traffic safety (Betz), and prescription drug overdose (Binswanger).

Over the past year, PIPER investigators engaged in projects with practice colleagues at the Colorado Department of Public Health and Environment and the Aurora Police Department and worked with numerous faculty colleagues on the Anschutz Medical Campus. Highlights include funding for a randomized trial of a gun storage intervention study led by Dr. Sigel and a career development award allowing Dr. Betz to focus on older drivers. Dr. Tung's health impact assessment of marijuana packaging received considerable press attention and helped shape state policy designed to protect children from unintentional marijuana poisoning. Likewise, Dr. Comstock's work on concussions among athletes was highly visible in the press, helping advance discourse and policy-making related to increasing safety for young athletes. Drs. Binswanger and Runyan have both held leadership roles with the Colorado Consortium for Prescription Drug Abuse Prevention – a group responsible to the Governor's Office in developing strategies to reduce overdose. Dr. Carolyn DiGuseppi remains an active PIPER team member, focusing on systematic reviews of injury interventions – with special interests in transportation safety, suicide, and geriatric injury.

Since 2012, we have continued to bring together injury and violence researchers from the University of Colorado Anschutz Medical Campus with other partners. Growing to over 90 members, the Injury and Violence Research and Evaluation (IVRE) group provides a forum for sharing information, getting feedback on works in progress, and nurturing the collaborative spirit necessary for cutting-edge research and practice. Our regular seminar series exposes students, faculty, and staff to topical issues in our field. We have been fortunate to be able to capitalize on visits from several investigators from around the world, expanding the network among our scholars. In several cases, we have been able to partner with academic departments – further integrating our efforts into the institution. We actively share information about injury problems and program developments through Facebook, Twitter, and traditional media.

We remain committed to bringing greater visibility to injury and violence issues among scholars on our campus, and throughout the state, region, and nation and to working with colleagues globally to advance a vision of a safer world. Thanks to all who helped us advance our mission this past year! Please let us hear from you if you have questions or can think of ways we can improve or expand going forward.

Sincerely,

Carol W. Runyan, MPH, PhD, Director

Program Overview

Since 2011, the Pediatric Injury Prevention, Education and Research (PIPER) program has linked research, training, and practice to prevent injury in Colorado, nationally, and around the world, with a special focus on pediatric populations.

PIPER is a joint initiative of the Colorado School of Public Health, the University of Colorado School of Medicine, and Children’s Hospital Colorado.

Vision To contribute to the significant reduction in child and adolescent injury and its outcomes in Colorado, the U.S., and the world as a function of high-quality research and effective practice.

Mission To drive evidence-based practice through discovery, translation, and workforce development.

Goals PIPER works to advance the following goals:

Research	Conduct cutting-edge research on injury and violence issues
Community Programs	Conduct high-quality injury and violence prevention activities in the community setting
Policy	Work to improve national, state, tribal, local, and organizational policy addressing injury and violence issues
Workforce Development	Train and assist professionals in public health practice applied to injury and violence prevention



Injury in the Mountain West Region

PIPER is located in Colorado, the second most populous state in the Mountain West – the large, geographically diverse US Census region that includes Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. Though better known its beautiful scenery, the Mountain West has particularly high rates of injury mortality, including significant injury problems and ethnic disparities as well as specific risks associated with our geographic uniqueness, distinctive urban-rural mix, and range of policy environments. The Mountain West Region has higher injury death rates than the nation as a whole for most types of injuries.

The Mountain West Injury Characteristics

Poisoning:

In 2010, the poisoning death rate for the Mountain West was nearly 40% higher than the US rate.¹

Opioid analgesics are an increasing problem that is not yet well understood. In 2008, 5.8% of people age 12+ were using opioid analgesics non-medically in the Mountain West—20% higher than the US as a whole.²

Suicide:

Suicide rates per 100,000 in the Mountain West (18.2) are substantially higher than for the US overall (12.1). Firearm suicides are especially problematic for the region, occurring at a rate of 9.9 per 100,000 compared to a US rate of 6.8.¹ By federal definition of mental health professional shortages, rural areas in much of the region disproportionately suffer from a shortage of mental health providers.³

Motor Vehicle:

Motor vehicle crash deaths take a disproportionate toll in the Mountain West, with a rate of 12.4 vs. 11.3 per 100,000 in the US as a whole. Native American communities have some of the highest motor vehicle death rates in the nation.¹

Contributing factors may include:

- Long driving distances and challenging conditions on rural and mountainous roads.
- Speed limits are among the highest in the nation, and only one Mountain West state has a primary seat belt law (NM), motorcycle helmet law (NV), or required bicycle helmets for children (NM).^{4,5,6}

Firearms:

Of firearm deaths in the region, 75% are suicides, 11% are homicides, and <1% are unintentional.¹

Recognizing the Mountain West's weak gun violence prevention laws, the Law Center to prevent Gun Violence gave every state in the region an "F" on the strength of gun laws except CO, which was graded a "D."⁷

Falls:

The death rate per 100,000 from falls is 11.4 in the region versus 8.1 in the US overall. Colorado's rate of 14.7 is one of the highest of any state.¹

Homicide:

Rates vary significantly by state. For example, ID and UT record very low rates while NV, AZ and NM have homicide rates exceeding the overall US rates. Homicide is an especially serious problem among Latinos.¹

Lifetime costs of fatal injuries that occurred in 2005 in the Mountain West region exceeded \$15 trillion.¹

Age-adjusted injury mortality rates per 100,000 population by injury type in the Mountain West states and U.S., 2010 (Source: CDC WISQARS ¹)							
	Poisoning	Suicide	Motor vehicle	Firearms	Falls	Homicide	All Injury
United States	13.7	12.1	11.3	10.1	8.1	5.3	57.0
Mountain West	18.9	18.2	12.4	13.2	11.4	4.8	71.8
Arizona	19.7	17.0	12.3	14.5	12.0	6.7	73.2
Colorado	15.1	16.7	9.6	10.7	14.7	3.4	65.4
Idaho	13.2	18.8	13.9	12.7	9.5	1.5	64.7
Montana	15.3	21.9	19.5	15.6	11.1	3.1	81.8
Nevada	22.6	19.8	10.7	14.5	7.3	6.1	68.8
New Mexico	27.3	20.1	16.5	14.8	13.0	7.6	91.0
Utah	19.1	18.2	10.6	11.4	9.0	1.9	66.7
Wyoming	18.2	22.4	23.0	15.5	9.0	--	84.7

Other Characteristics of the Mountain West:

Growing:

>22 million, or 7.2% of the continental US population (2010).⁸
 Fastest growing population amongst census regions, with state population growth rates as high as 35%.⁹

Highly urban AND highly rural:

~75% of the population lives in major cities.⁸
 226 frontier counties with a population density of <7 people per square mile.¹⁰

Diverse and young:

<25% of the population in NV and AZ and nearly 50% in NM is Latino.⁹
 ~920,000 Native Americans in the Mountain West; among the highest injury death rates - 96/100,000.¹¹
 Largest percentage of people <18 and 18-44 of any region in the country.⁹

Unique risk factors:

Overall alcohol intake and binge drinking rates higher than many other regions.^{12,13}
 Effects of expanding marijuana legalization from medical to recreational use in CO are undetermined, though initial data signal likely increases in child ingestions.^{14,15}

Poor health insurance coverage:

17% of Mountain West residents did not have health insurance at any point in 2012, compared to 15% in the US overall.¹⁶

Limited trauma center coverage:

Only 78% of the region's population is within a 60 minute response time to a Level I or Level II trauma center compared to 83% of the US population overall.¹⁷

PIPER Team

Faculty



Carol Runyan, MPH, PhD, PIPER Program Director

Carol Runyan, MPH, PhD brings over 30 years as a leader in the field of injury and violence prevention to the program. She founded PIPER when she joined the faculty of the Colorado School of Public Health (CSPH) in 2011 as Professor of Epidemiology with secondary appointments in Community and Behavioral Health and Pediatrics (School of Medicine “SOM”).

In 1987, Dr. Runyan co-founded one of the longest operating and most successful injury control research centers in the nation, the University of North Carolina Injury Prevention Research Center — a “Center of Excellence” on injury prevention — and served as director for over 20 years. Her research has shaped state and national policy, identified priorities, and broken new scientific ground, publishing more than 130 refereed papers and 30 book chapters in the process.

Dr. Runyan has mentored dozens of graduate students, fellows, and junior faculty and has been an innovator in training the injury workforce. She was the chief architect of the National Training Initiative, a joint effort of the Society for the Advancement of Violence and Injury Research (SAVIR) and Safe States Alliance. This initiative resulted in the creation of a set of core competencies for injury and violence professionals and in 2003, Dr. Runyan developed the PREVENT (Preventing Violence through Education, Networking and Technical Assistance) program, which has trained over 900 professionals from 44 states. Her research has addressed numerous topics including adolescent worker safety, safety in the home environment, and violence prevention.

She was honored with the first Excellence in Science award from the American Public Health Association and was the first recipient of the Home Safety Council’s Research Award. In 2012, Runyan was recognized by the National Center for Injury Prevention and Control as one of the most influential leaders of the injury field over the past twenty years.



Marian (Emmy) Betz, MD, MPH

Marian Betz, MD, MPH is trained in emergency medicine and epidemiology, with a research focus on traffic safety and suicide. She is an attending physician at the University of Colorado Hospital, as well as Assistant Professor of both Emergency Medicine (SOM) and Epidemiology (CSPH); she completed medical and public health training at Johns Hopkins University.

Dr. Betz was recently awarded a Paul Beeson K23 award from the National Institute on Aging for her work to develop a tiered assessment system for older drivers. She has served as an invited member of national workgroups to develop guidelines for suicide prevention by emergency providers and currently serves as an elected section councilor for the Injury Control and Emergency Health Services Section of the American Public Health Association. She is the 2014-15 President of the Academy of Geriatric Emergency Medicine (part of the Society for Academic Emergency Medicine).



Ingrid A. Binswanger, MD, MS, MPH

Ingrid A. Binswanger, MD, MPH, MS is an internist and health services researcher with special expertise in substance abuse. She is Associate Professor of General Internal Medicine and an Affiliated Member of the Division of Substance Dependence (SOM). Dr. Binswanger completed her MD and Internal Medicine residency at the University of California, San Francisco. She obtained research training in the Robert Wood Johnson Clinical Scholars Program and received her MPH at the University of Washington.

Dr. Binswanger leads the Primary Care Research Fellowship and the Patient-Centered Outcomes Research (PCOR) Scholars Program. Her research focuses on overdose epidemiology and prevention and on improving the health of high-disparity populations. She sees patients at Denver Health’s Gipson Eastside Family Health Center and Addiction Research and Treatment Services and actively collaborates with Kaiser Permanente Colorado.



Ashley Brooks-Russell, MPH, PhD

Ashley Brooks-Russell, MPH, PhD has expertise in social and behavioral sciences, including intervention development and evaluation. She joined the PIPER faculty in January 2014 as Assistant Professor of Community and Behavioral Health (CSPH) and has an MPH from Case Western Reserve University and a PhD from the University of North Carolina at Chapel Hill in health behavior.

As a postdoctoral researcher in the Prevention Research Branch at the National Institute of Child Health and Human Development, Dr. Brooks-Russell studied trends and risk factors for youth violence, modifiable risk factors for underage drinking and driving, and the increased risk of crashes associated with peer passengers and distracted driving. Her interests include developing interventions tailored to community-based and clinical settings, with a focus on adolescents.



R. Dawn Comstock, MS, PhD

Dawn Comstock, MS, PhD has expertise in sports injuries. An Associate Professor of Epidemiology (CSPH) and Pediatrics (SOM), she has an MS in Epidemiology from the University of Iowa and a PhD in Public Health and Epidemiology from the joint program at the University of California – San Diego and San Diego State University.

Dr. Comstock is a nationally recognized expert in sports and recreation injury surveillance, epidemiology, and prevention. She has 94 refereed publications and is the originator of the National High School Sports-Related Injury Surveillance System (High School RIO™), which serves as the official surveillance system of the National Federation of State High School Associations. Her data have been used to drive federal, state, and non-governmental sporting organizations' policy decisions. Dr. Comstock is also an experienced teacher and has mentored more than 25 young researchers including high school, undergraduate, graduate, and medical students, and residents/fellows.



Carolyn DiGuseppi, MD, MPH, PhD

Carolyn DiGuseppi, MD, MPH, PhD contributes special expertise in systematic review and testing of community-based strategies to prevent injuries and violence. Professor of Epidemiology and of Community and Behavioral Health (CSPH) and Pediatrics (SOM), she trained in Pediatrics and General Preventive Medicine at the University of Washington, where she received her MPH degree in epidemiology. While a senior research fellow at the Institute of Child Health, University College London, in the U.K., she completed her PhD in injury epidemiology.

Dr. DiGuseppi spent more than five years as Science Advisor, then Senior Policy Analyst, in the federal government, earning several US Public Health Service special recognition awards. Her research has focused on trials of community-based injury prevention interventions, with current interests including prevention of falls and motor vehicle injuries in older adults and suicide, publishing more than 100 peer-reviewed journal articles, book chapters, and scholarly reviews. She serves on the editorial boards of Injury Prevention and the Cochrane Collaboration Injuries Review Group, directs the CSPH preventive medicine residency program, holds residency training grants, and served as Deputy Director of the ICRC at Colorado State University.

Faculty, cont.



Eric Jon Sigel, MD

Eric Sigel, MD, a pediatrician, specializes in Adolescent Medicine with a research focus on violence prevention. He is Associate Professor of Pediatrics (SOM), directing the fellowship in Adolescent Medicine. Dr. Sigel received his MD and completed his pediatric residency at Case Western Reserve University, and Adolescent Medicine fellowship at Harvard.

Dr. Sigel has created a violence risk screening tool that has increased primary care providers' abilities to detect violence risk in adolescent patients and completed a K01 award from the CDC's NCIPC to further study violence screening. He is a co-investigator on an Academic Center for Excellence in Youth Violence Prevention, in collaboration with the University of Colorado-Boulder Center for the Study and Prevention of Violence, and is PI of an RCT from the National Institute of Justice to address adolescent firearm access. He serves on the Society for Adolescent Health and Medicine's Violence Prevention Advisory Group, and works with numerous community-based organizations, including the Gang Reduction Initiative of Denver.



Gregory Tung, MPH, PhD

Gregory Tung, MPH, PhD brings a focus on policy translation and implementation, including the use of health impact assessments as a tool for community level change. Dr. Tung is Assistant Professor of Health Systems, Management and Policy (CSPH), having earned an MPH and PhD in health policy from the Johns Hopkins Bloomberg School of Public Health.

Dr. Tung is especially interested in the incorporation of scientific evidence and community input into decision making related to injury prevention policies and programs. He is experienced in conducting health impact assessments (HIAs) to inform policy decisions and is currently engaged in collaborations with multiple community-based organizations. Dr. Tung also has a growing research focus on nonprofit hospital community benefit activities. He is teaching students in both the CSPH and Nursing School about health policy, drawing on his experiences as a hospital administrator, and serves as Blog editor for the international journal, *Injury Prevention*.

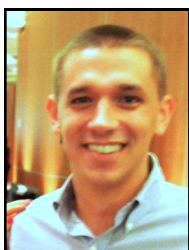
Staff



Sara Brandspigel, MPH, Program Manager

Sara Brandspigel, MPH has ten years of experience managing public health and education programs and has overseen daily operations of the PIPER program, including program development, communications, and grants management, since early 2012.

Prior to joining PIPER, she led education and outreach activities for the family planning program at the Montana Department of Public Health and Human Services and served as development director for Heads Up, an educational enrichment program for underserved youth in Washington, DC, and project manager at the Association of Maternal and Child Health Programs. She received her MPH with a focus on maternal and child health from the University of North Carolina.



Dustin Currie, MPH, Professional Research Assistant

Dustin Currie, MPH joined PIPER in 2013 as a professional research assistant working with Dr. Comstock in sports injury epidemiology. Prior to joining PIPER, Dustin worked as a research assistant with Dr. DiGuseppi through the Colorado Injury Control Research Center and also with the Nurse-Family Partnership National Service Office. He received his MPH from the Colorado School of Public Health.

Student Employees

One of PIPER's goals is to train and assist professionals in public health practice applied to injury and violence prevention. As such, Colorado School of Public Health students are an integral part of the PIPER team. A number of students were employed in projects led by PIPER core faculty in 2013. Many others received mentoring from PIPER faculty on their own projects (p. 29).



Roman Ayele, MPH, Research Assistant, PhD Student—Health Services Research

Roman Ayele works with Dr. Gregory Tung to understand the collaboration between the Nurse Family Partnership and Child Protective Services and factors mediating their relationship and goals.

Research interests: maternal and child health, access to care, healthcare utilization locally/globally



Talia Brown, MS, Research Assistant, PhD Student—Epidemiology

Talia Brown coordinated PIPER's Harmonizing Child Injury Research project and works on program evaluations for the Community Epidemiology and Program Evaluation Group.

Research interests: firearm suicide prevention



Vicka Chaplin, MA, Program Assistant, MPH Student—Community and Behavioral Health

Vicka Chaplin performs administrative and research support tasks for PIPER, including public communications, grants editing, and research assistance.

Research interests: interpersonal violence and suicide prevention, military populations



Katherine Collins, Research Assistant, MPH Student—Community and Behavioral Health

Katherine Collins started at PIPER as Program Assistant and subsequently worked with Dr. Gregory Tung on the prevention of unintentional marijuana ingestion by children in Colorado.

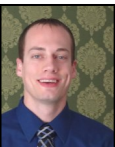
Research interests: injury prevention, both intentional and unintentional, with an emphasis on youth



Jodi Kay Duke, Research Assistant, PhD Student—Health Services Research

Jodi Kay Duke worked with Dr. Gregory Tung to conduct a Health Impact Assessment on the prevention of unintentional marijuana ingestion by children in Colorado.

Research interests: strengthening and adopting health impact assessments in diverse settings



Curtis Harrod, MPH, Research Assistant, PhD Student—Epidemiology

Curtis Harrod worked with Dr. Carolyn DiGuseppi to systematically review the evidence on primary suicide prevention programs and policies at universities and other post-secondary settings.

Research interests: suicide, prenatal exposures, and early childhood outcomes



Amy Klapheke, Research Assistant, MPH Student—Epidemiology

Amy Klapheke worked with Dr. Carol Runyan on the Harmonizing Child Injury Research Project to create a database of collection instruments from childhood and adolescent injury studies.

Research interests: public mental health, particularly as related to suicide and substance abuse



Suzuho Shimasaki, MPH, Research Assistant, DrPH Student—Community and Behavioral Health

Suzuho Shimasaki works with Children's Hospital Colorado on a safe sleep study as well as a study of the Nurse Family Partnership's role in the prevention of child abuse and neglect.

Research interests: racial equity, social justice, health equity



Norbert Soke, MD, MSPH, Research Assistant, PhD Student—Epidemiology

Dr. Norbert Soke works with Dr. Carolyn DiGuseppi, leading a study comparing self-injurious behavior (SIB) in children with autism spectrum disorders to SIB in children with other neurodevelopmental disorders or typical development.

Research Interest: self-injurious behavior, autism spectrum disorder

IVRE

Injury & Violence Research & Evaluation Group

Since 2012, PIPER has convened monthly meetings of the Injury and Violence Research and Evaluation (IVRE) group, a gathering of researchers and practitioners who share an interest in injury and violence prevention.

IVRE members share research and network with their colleagues in the field of injury and violence. Topics include discussions of works in progress, brainstorming new directions, and exploring opportunities for future efforts and collaborations. A listserv is used to communicate funding opportunities, resources, events and other information.

Selected 2013 IVRE Topics

GIS/Spatial Analysis for Teen Motor Vehicle Injury Prevention	Comilla Sasson, MD, MS Emmy Betz, MD, MPH
The NIH Application Process: Firsthand Experiences from Applicants and Reviewers	Heather Taussig, PhD Des Runyan, MD, DrPH
Sports Injury Research, Data, and Opportunities for Collaboration	Dawn Comstock, PhD
Injury and Violence Prevention in Public Health Systems: A Mixed Methods Approach to Understanding the Factors Associated with Effective Public Health Practice	Carol Runyan, PhD, MPH Greg Tung, PhD, MPH
Multiple proposals for NIH funding opportunity: "Pilot projects on sports-related brain and spinal cord injury"	Dawn Comstock, PhD Comilla Sasson, MD, MS Joseph Grubenhoff, MD Michael Kirkwood, PhD
The SafeCare Child Abuse Treatment and Prevention Program: Implementation in Colorado and Opportunities for New Research	Katherine Casillas, PhD
Mapping and Evaluating State Suicide Prevention Policies	Gregory Tung, PhD
Developing a Latency Based Measurement of Child Maltreatment	John Fluke, PhD Des Runyan, MD, DrPH
Pre-Hospital Care	Kathleen Adalgais, MD
Increased Screening and Secondary Prevention for Child Physical Abuse	Dan Lindberg, MD
A Randomized Controlled Trial on Community Gardens	Jill Litt, PhD
State Legislation to Address Concussions in Youth Sports: Current Status and Future Directions	Greg Tung, PhD
Discussion: Injury Research Center Grant	Carol Runyan, PhD
Defining the Prevention Population for the SafeCare Intervention Using Predictive Risk Modeling	Katherine Casillas, PhD
Assessing the Effectiveness of Project SafeCare on Reducing Injuries in Children Ages 2 to 5	Terri Lewis, PhD
Future Directions in Poisoning Studies (Focus on Unintentional Marijuana Ingestion)	Sam Wang, MD
Safe Kids and Other Injury Prevention Activities of Children's Hospital Colorado	Dwayne Smith, MEd, MCHES

IVRE Group Members

Colorado School of Public Health

Sara Brandspigel, MPH, Pediatric Injury Prevention, Education & Research Program

Ashley Brooks-Russell, MPH, PhD, Pediatric Injury Prevention, Education & Research Program, Community & Behavioral Health

Talia Brown, MS, Pediatric Injury Prevention, Education & Research Program, Epidemiology

Dawn Comstock, MS, PhD, Pediatric Injury Prevention, Education & Research Program, Epidemiology

Carolyn DiGuseppi, MD, MPH, PhD, Pediatric Injury Prevention, Education & Research Program, Epidemiology

Cindy Goss, MA, Epidemiology

Robin Kimbrough-Melton, JD, The Kempe Center, Pediatrics, Community & Behavioral Health

Richard Lindrooth, PhD, Health Systems, Management & Policy

Jill Litt, PhD, Environmental & Occupational Health

Lee Newman, MD, MA, Environmental & Occupational Health

Carol Runyan, MPH, PhD, Pediatric Injury Prevention, Education & Research Program, Epidemiology

Angela Sauaia, MD, PhD, Health Systems, Management & Policy

Ken Scott, MPH, Mountain & Plains Education & Research Center, Epidemiology

Gregory Tung, MPH, PhD, Pediatric Injury Prevention, Education & Research Program, Health Systems, Management & Policy

Lorann Stallones, PhD, MPH, Epidemiology (Psychology, Colorado State University)

University of Colorado School of Medicine

Kathleen Adelgais, MD, Pediatric Emergency Medicine

Sarah Allexan, MD candidate 2016

Lalit Bajaj, MD, MPH, Pediatric Emergency Medicine

Amy Becker, MD, Pediatric Psychiatry

William Betts, PhD, The Kempe Center, Pediatrics

Marian (Emmy) Betz, MD, MPH, Pediatric Injury Prevention, Education & Research Program, Emergency Medicine

Ingrid Binswanger, MD, MPH, Pediatric Injury Prevention, Education & Research Program, Internal Medicine

Michelle Brock, MD, Pediatric Pulmonology

Donald Bross, JD, PhD, The Kempe Center, Pediatrics

Kristen Carpenter, BA, Emergency Medicine

Katherine Casillas, PhD, The Kempe Center, Pediatrics

Antonia Chiesa, MD, The Kempe Center, Pediatrics

Jerry Clayton, PhD, Physical Medicine & Rehabilitation

Sara Culhane, JD, PhD, The Kempe Center, Pediatrics

Meghan Dahlin, MA, The Kempe Center, Pediatrics

Jeanne Dise-Lewis, PhD, Psychiatry, Physical Medicine & Rehabilitation

Kathryn Emery, MD, Pediatric Emergency Medicine

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Aaron Provance, MD, Orthopedics

Arleta Rewers, MD, Pediatric Emergency Medicine

Genie Roosevelt, MD, Pediatric Emergency Medicine

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Traci Snedden, CPNP, Pediatric Emergency Medicine

Taylor Soderborg, BA

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Children's Hospital Colorado

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Theresa Rapstine, BSN, RN, School Health Program

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Abby Waldbaum, MA, Injury Prevention

University of Colorado Denver

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Elizabeth Greenwell, ScD, Regulatory Compliance, COMIRB

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Colorado Department of Public Health and Environment

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Barbara Gabella, MSPH, Health Statistics & Evaluation Branch

Indira Gujral, PhD, MS, Prevention Services Division

Jan Hart, MSPH, Injury, Suicide & Violence Prevention Branch

Colleen Kapsimalis, MPH, CPH, Child Fatality Prevention System

Aerin LaCerte, Injury, Suicide & Violence Prevention Branch

Ali Maffey, MSW, Injury, Suicide & Violence Prevention Branch

Lindsey Myers, MPH, Injury, Suicide & Violence Prevention Branch

Denver Health

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Anthony Barkey, MPH, Injury Prevention

Simon Hambidge, MD, PhD, Pediatrics

Gregory Jurkovich, MD, Surgery

Erin Martinez, MS, Rocky Mountain Poison and Drug Center

Theresa Mickiewicz, MPH

Sara Muramoto, BS, Emergency Medicine

Deborah Rinehart, PhD, MA, Health Services Research

Other

Sabrina Arredondo Mattson, PhD, Center for the Study & Prevention of Violence, University of Colorado Boulder

Omar Gudino, PhD, Psychology, Denver University

James Helmkamp, PhD, National Institute for Occupational Safety and Health

Jennifer Kelloff, MD, Kaiser Permanente Colorado

Partnerships

Academic & Community

PIPER draws on strengths throughout the Anschutz Medical Campus, as well as partnerships with multiple other groups in academia and practice settings.

Members of our team worked with colleagues at other institutions on research projects (e.g., Colorado State University, Ohio State University, Harvard University, Johns Hopkins University, University of North Carolina, University of Colorado-Boulder, University of Washington). In addition, we engaged with multiple practice partners in community settings. Some examples include working with:

- the Aurora Police Department on community-based efforts to reduce gang violence;
- Colorado Department of Public Health and the Environment on nurturing safe, stable, nurturing relationships and environments for children;
- Colorado Department of Public Health and the Environment on evaluating a web-based suicide prevention program;
- tribal injury programs throughout the West;
- Children’s Hospital Colorado on examining safe sleep behaviors with teenage mothers;
- the state legislature of Colorado on marijuana packaging policies; and
- athletic trainers in high schools throughout the nation on monitoring injuries to young athletes.

Over the past year, PIPER has reached out to injury programs in the health departments of all eight states in the Mountain West region, offering to collaborate on training activities and program development and evaluation.



Projects

Active in 2013

UNINTENTIONAL INJURY: DRUGS & ALCOHOL

2010-2013 **Aurora P.A.R.T.Y. (Prevent Alcohol and Risk Related Trauma in Youth) Program**

The goal of the Aurora Prevent Alcohol and Risk Related Trauma in Youth (P.A.R.T.Y) program is to promote injury prevention through reality education about injury awareness and prevention by means of an interactive program that helps teenagers recognize risk and make informed choices about activities and behaviors. Participating youths experience a full-day session following the path of an automobile injury survivor from crash occurrence through transport, treatment, rehabilitation, and community re-integration, meeting the professionals who would care for them in a trauma situation, and learning about the impact such injuries could have on their futures (health, legal, and financial) and everyone around them. P.A.R.T.Y presentations held through 2013 on the University of Colorado campus and on the road have reached over 3,800 youth across Colorado.

PIPER Contact: Marian Betz, MD, MPH (Scientific Advisor/Consultant)

Funder: Colorado Department of Transportation

2010-2013 **HIV Risk Behavior in Drug-Involved Former Inmates**

The criminal justice population is large, growing, and has a high prevalence of HIV/AIDS and substance use disorders. After release from prison to the community, drug-involved former inmates have considerable opportunities to engage in high-risk behaviors that put themselves and community members at risk for HIV. Risk behavior in this context is likely influenced by pre-incarceration, incarceration, and re-entry factors, including community supervision status and gender. This study utilized a longitudinal cohort design in a random sample of 200 drug-involved former inmates to investigate HIV risk behaviors over time after release from prison, test whether drug-involved former inmates on community supervision have a lower prevalence of HIV risk behaviors than those released without supervision, test whether women have a higher prevalence of HIV risk behaviors than men, and determine whether HIV risk behaviors correlate with other health risk behaviors. This study also examined HIV as a risk factor for overdose and history of overdose among former prison inmates. Findings will lead to a better understanding of the patterns of HIV risk behavior among drug-involved former inmates to develop targeted, timely and appropriate interventions to reduce HIV transmission.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (PI)

Funder: National Institute on Drug Abuse

2011-2013 **Drug-Related Risk for Death After Release from Prison**

Prior research by Dr. Binswanger (PI) demonstrated that former inmates are at high risk for death, especially in the first two weeks after release from prison. Nearly one quarter of all deaths was due to drug overdose; many other causes of death were related to substance abuse. However, little is known about drug-related risk factors for death after release from prison. This study examined the drug-related risk and protective factors associated with death after release from prison over a ten year period, with an emphasis on substance dependence, narcotic prescriptions shortly before release, HIV status, and in-prison substance dependence treatment. The study aims included determining if substance dependence, prescribed narcotic use prior to release, and HIV are associated with an elevated risk of death after release from prison, and if substance dependence treatment in prison is protective, as well as the risk of death from all causes (including overdose) after release. The results will inform further research into substance dependence screening and treatment in correctional facilities and the development of a targeted intervention to reduce the risk of drug-related deaths after release from prison.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (PI)

Funder: National Institute on Drug Abuse

2011-2016

The Impact of Medical Marijuana in Metropolitan Denver

Colorado has an estimated 100,000 medical marijuana patients, and this widespread use raises concerns about marijuana abuse, diversion, and other consequences of use. Unfortunately, there are few data describing the impact of medical marijuana legalization. This research helps to fill this gap by investigating the marijuana industry in Colorado using qualitative and quantitative methods. Phase I of this project will study how the evolving medical marijuana industry operates and the views of drug treatment and health care providers concerning how medical marijuana impacts their responsibilities. Phase II will involve an ongoing assessment of the epidemiology of medical marijuana, while Phase III will assess the prevalence of marijuana abuse and dependence, diversion, other drug use, general health and health care utilization among medical and non-medical marijuana users. Phase III will also include assessment of HIV-related sex risk behaviors among medical and non-medical marijuana users.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (Co-I)

Funder: National Institute on Drug Abuse

2013-2014

Interdisciplinary Collaboration to Enhance Safe Storage of Opioids in the Home

This exploratory project supports faculty in the Schools of Medicine and Engineering to investigate engineering options for a wirelessly monitored opioid safe storage device.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (PI)

Funder: University of Colorado School of Medicine GIM Small Grant



2013-2014

Let's talk about life: Empowering our Community to Prevent Deaths from Overdose

Fatal unintentional poisoning from opioids is a major problem in Colorado and nationwide. The number of drug related overdose deaths has increased 59 percent since 1999 in Colorado. One proposed solution to high overdose rates has been widening access to naloxone, a short-acting opioid antagonist. Supported by an NIH/NCATS Colorado CTSI grant, we developed a community-academic partnership between the Harm Reduction Action Center (HRAC) and the University of Colorado School of Medicine to investigate overdose education and naloxone take-home use. The aims of the study include assessing the effectiveness of overdose education and naloxone training, describing contextual factors that influence safe and effective naloxone administration in the community, and describing how trained drug users make the decision to administer naloxone during overdose reversals in community settings.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (Academic PI)

Funder: Colorado Clinical and Translational Sciences Institute

2013-2016

Overdose Risk Assessment, Counseling and Naloxone Prescription in Health Care

Fatal unintentional poisonings from pharmaceutical opioids have increased more than three-fold in the last decade. Naloxone is an effective, Food and Drug Administration approved opioid antidote usually administered by first responders in emergency settings to reverse respiratory depression due to opioid poisoning. Widespread prescribing of naloxone for take-home use to patients on prescription opioids may prevent overdose deaths through earlier treatment. Primary care settings in large health care systems offer the opportunity to reach many individuals at risk for opioid overdose, particularly individuals on high dose opioids. In the primary care setting, patients at risk can be identified and counseled on overdose risk, as well as prescribed naloxone. This study will

examine barriers and facilitators to prescribing naloxone for take-home use and develop and pilot test an overdose risk assessment, counseling, and naloxone prescription intervention for delivery in primary care settings. This study will develop a feasible overdose prevention intervention for use in large health care systems, and preliminary data will be collected to support a future multi-site randomized controlled trial of this intervention.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (PI)

Funder: National Institute on Drug Abuse

UNINTENTIONAL INJURY: MOTOR VEHICLE

2013 Senior Driver Cohort Study (Pilot Study).

The U.S. Census Bureau reports that 10,000 people will turn 65 every day from now until 2030. Understanding the safety and mobility needs of these newly-minted seniors is a pressing concern. This pilot study (completed) is part of a long-term project that will generate a wealth of data by tracking a large group of older drivers (roughly 3,000) for a period of 5-10 years, collecting information on the effects of aging on safe driving, specific risk factors, circumstances surrounding driving cessation, and mobility options for seniors who no longer drive. This large study will provide the scientific backing needed to implement effective policies and programs, will support fair treatment of older drivers, and the database it creates will serve as a unique resource for answering questions about senior safety and mobility.

PIPER Contacts: Carolyn DiGuseppi, MD, MPH, PhD (Site Co-PI) and Marian Betz, MD, MPH (Site Co-PI)

Funder: AAA Foundation for Traffic Safety

2013-2018 Physician Screening of Older Drivers: Decision Rules for Geriatric Injury Prevention.

With the aging of the U.S. population, there is an urgent need for efficient, effective and acceptable methods of identifying, retraining or restricting unsafe older drivers without unfairly restricting the mobility of those who are safe. This project applies the model of a clinical decision rule to a public health program through the development of tiered older driver assessment, with widespread brief screening followed by referral for additional evaluation of those with a positive screen. The research plan aims to examine the viewpoints of older drivers, their families, and providers concerning driver assessment, to validate and refine a brief question-based screening tool, and to examine the feasibility of pilot program implementation in order to prepare for future implementation of a model tiered older driver assessment program (planned R01). This project is part of a Paul B. Beeson Patient-Oriented Research Career Development Award in Aging (K23) awarded to Dr. Betz.

PIPER Contact: Marian Betz, MD, MPH (PI)

Funder: National Institute on Aging

UNINTENTIONAL INJURY: SPORTS

2005-2014 High School Sports Injury Surveillance Study [Expansion]

The National High School Sports-Related Injury Surveillance Study uses an internet-based data collection tool called the High School RIO™ to capture US high school athletes' exposure, injury, and injury event data weekly throughout the academic year across 20 sports. These data are used to describe the rates, patterns, and trends of high school sports-related injuries as the necessary first step toward the development, implementation, and

evaluation of evidence-based, targeted prevention programs to reduce the number and/or severity of injuries among high school athletes. The goal is that High School RIO™ data will continue to be used to encourage students to safely play sports, which will in turn increase physical activity, improve physical fitness levels, and lead to life-long healthy behaviors. Annual funding continuations of the expansion of the study have allowed data collection to continue since its inception in 2005.

PIPER Contact: Dawn Comstock, MS, PhD (PI)

Funder: National Federation of State High School Associations



2012 – 2015

Evaluating the Effectiveness/Outcomes of State Level Concussion Policies

The goal of this study is to evaluate the effectiveness of state level concussion legislation and specific components of state level concussion legislation using High School RIO concussion outcomes data. As High School RIO has collected data since the 2005/06 academic year and the first state level legislation was passed in 2009, the data from this surveillance system is uniquely situated to conduct pre-post comparison evaluation of concussion outcomes including concussion rates, severity, and compliance with return to play guidelines.

PIPER Contact: Dawn Comstock, MS, PhD (PI)

Funder: National Center for Injury Prevention and Control (Centers for Disease Control and Prevention), through a subcontract from the Nationwide Children's Hospital Center for Injury Research and Policy ICRC grant

2012-2017

Functional Evaluation to Predict Lower Extremity Musculoskeletal Injury

The National Federation of State High School Associations considers pre-participation physical evaluations (PPE) a prerequisite to athletics participation, yet there are no large-scale controlled trials confirming the effectiveness of the PPE as it relates to musculoskeletal injuries. Recently updated PPE guidelines promote a "functional" aspect of testing by incorporating performance-based tests, but limitations exist concerning the best recommended functional test components, their ability to predict injury, and effectiveness as compared to a traditional PPE. To address this knowledge gap, this study will determine if a functional pre-participation physical evaluation (F-PPE) will better predict lower extremity injury than traditional PPE. This project includes developing a cost-effective and time-efficient F-PPE for use in clinical settings, recording injury occurrence using the High School RIO™ to identify which F-PPE measurement(s) are best associated with injury risk, and developing operational procedures for the F-PPE. The findings will help to understand the parameters of functional performance testing and evaluate methods for improving risk prediction of musculoskeletal lower extremity injury.

PIPER Contact: Dawn Comstock, MS, PhD (Co-I)

Funder: National Institute of Arthritis, Musculoskeletal and Skin Diseases

2013-2015

Evaluation of Spot Light: A Concussion Injury Management App for Youth Sports

Sports-related traumatic brain injuries, including concussions, are a serious public health concern. Diagnostic criteria and consensus return to play (RTP) guidelines exist, but these guidelines are almost completely unsupported by an evidence base. However, it is well known that by increasing awareness of concussion signs and symptoms as well as the importance of addressing this injury, improving coaching on proper techniques and good sportsmanship, providing appropriate protective equipment, and quickly responding to injuries, the incidence, severity, and long-term negative health effects of sports-related concussion among children and adolescents can be reduced. Thus, there is a critical need for tools for prevention. *Spot Light* is a free and easy-to-use application (app) that coordinates diagnosis, management, and RTP procedures from concussion injury to safe return to sport. This project will evaluate whether Spot Light increases reporting rates of sports-related concussion, increases referrals to physicians, and increases athlete compliance with RTP guidelines. This research has potential impacts in the areas of sports injury prevention and the related use of mobile app technology, and is the first step toward attaining the long-term goal of reducing the negative consequences of sports-related concussion, specifically in youth sports.

PIPER Contact: Dawn Comstock, MS, PhD (Co-PI)

Funder: National Institute of Child Health and Human Development

OTHER UNINTENTIONAL INJURY

2007-2013

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

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 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). Following formative research consisting of focus groups and key informant interviews, a targeted social marketing program will be developed to motivate participation by increasing class attractiveness, usability, and uptake and reducing barriers or costs, and using incentives or other benefits to reinforce participation. Sixty-two diverse FBCs will be randomly allocated to intervention or control groups to test whether seniors from intervention FBCs are more likely to join balance-retraining classes. If the marketing program is effective, it may be widely implemented and/or inform the development of similar programs with other target audiences.

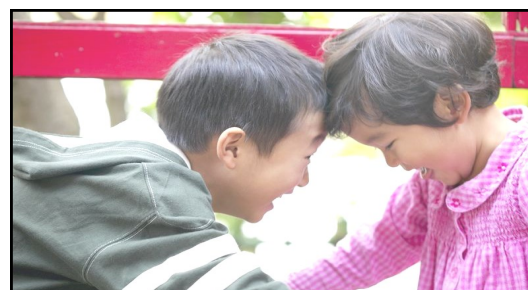
PIPER Contact: Carolyn DiGuseppi, MD, MPH, PhD (PI)

Funder: Centers for Disease Control and Prevention, Colorado Injury Control Research Center

2008-2013

National Children’s Study - Douglas County, CO

The *National Children's Study* (NCS) is a prospective longitudinal cohort study of the individual and combined effects of environmental exposures and gene environmental interactions on child health and development in a representative sample of approximately 100,000 children born in the United States and followed from before birth until age 21. The study is the largest long-term study of children's health



ever conducted in the United States. The primary aim of the NCS is to investigate the separate and combined effects of environmental exposures (chemical, biological, physical, psychosocial) as well as gene-environment interactions on pregnancy outcomes, child health and development, and precursors of adult disease. Injury risk is one of the factors being examined in the cohort.

PIPER Contact: Carolyn DiGuseppi, MD, MPH, PhD (Co-I, Lead Evaluator)

Funder: National Institute of Child Health and Human Development

2011-2015 **Longitudinal Approach to Examining Deaths in Correctional Facilities**

This is a Visiting Fellowship in the Criminal Justice Statistics Program to examine mortality among prisoners in the United States and develop a framework for future data collections on health in correctional populations. The overall purpose of this fellowship is to support the scholarly use of Bureau of Justice Statistics data collections, expand the body of policy-relevant research that uses these data, and enhance or inform bureau programs. The focus of the first project in this Visiting Fellowship is to assess the impact of tobacco control policies on tobacco-related deaths in prisons. The second project develops a framework for data collections on health and health care delivery across the spectrum of criminal justice involvement.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (PI)

Funder: U.S. Bureau of Justice Statistics

2011-2016 **Centers for Autism and Developmental Disabilities Research and Epidemiology (CADDRE): Study to Explore Early Development (SEED) II**

While diagnostic practices are improving, little is known about the causes or correlates of the neurodevelopmental disorders known collectively as Autism Spectrum Disorders (ASDs). The Centers for Autism and Developmental Disabilities Research and Epidemiology were established to address the magnitude, incidence, and causes of autism and related developmental disabilities and recently completed Phase I of the Study to Explore Early Development (SEED I) with more than 3500 children enrolled. The current project, **SEED Phase II**, involves recruiting another 1080 children in each study group across six national study sites to address hypotheses in five domains: phenotype, infection and immune function, reproductive and hormonal features, genetic features, and socio-demographic features. A sub-study examines injuries and injury hospitalizations in children with autism, including self-injurious behavior. The combined SEED phases will provide clinical, risk factor, and biological specimens and data on over 6000 families – the largest study of ASDs of this kind – and is poised to make significant contributions to our understanding of ASDs. This is a joint project with Pediatrics and Psychiatry (School of Medicine), Colorado School of Public Health, and Colorado Department of Public Health and Environment.

PIPER Contact: Carolyn DiGuseppi, MD, MPH, PhD (Co-PI)

Funder: Centers for Disease Control and Prevention

2012-2014 **Harmonizing Child Unintentional Injury Research Through Shared Instrumentation**

As the field of injury has grown, more investigators are examining patterns of child injury in different settings. In 2011, for example, there were more than 6000 papers listed in SafetyLit®.org with a focus on child and adolescent injury. Yet, no central compendium of data collection instruments accessible to the community of researchers exists, and there has never been a systematic method to compile, on an ongoing basis, measures used in injury research. To address this need, we created a searchable database of data collection instruments so that investigators can benefit from prior work and enhance the consistency across studies. This database has

been made available to the community of scholars through Dr. David Lawrence of SafetyLit.org, Inc.

PIPER Contact: Carol Runyan, MPH, PhD (PI)

Funder: National Center for Injury Prevention and Control, through a contract with the Society for the Advancement of Violence and Injury Research

SUICIDE & INTERPERSONAL VIOLENCE

2009-2013

Evaluating Population-Based Approaches to Suicide Prevention through Systematic Reviews

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. This project comprehensively identified high-quality studies of suicide prevention programs and used the identified studies to conduct two systematic reviews of suicide prevention strategies to determine whether they are effective. This project will contribute to the available evidence base for policy makers, public health, and other professionals to use when making decisions about program implementation. The systematic reviews include a study of social connectedness interventions for preventing suicide in young and middle aged adults (analyses in progress) and a study of interventions for primary prevention of suicide in the post-secondary educational setting (found insufficient evidence to support widespread implementation of any studied programs or policies for primary suicide prevention in post-secondary educational settings). This was a joint project with CSPH and CSU.

PIPER Contact: Carolyn DiGuseppi, MD, MPH, PhD (PI)

Funder: National Center for Injury Prevention and Control, Colorado Injury Control Research Center

2009-2014

Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE)

The goals of this quasi-experimental clinical trial are to develop and test a standardized approach to screening ED patients for suicide risk, to refine and test an ED-initiated intervention to reduce suicidal behavior and associated morbidity and mortality, and to complete a comparative economic analysis of treatment as usual, screening, and the intervention. The ED-SAFE study tests the concept that not all patients with suicidal ideation need to be evaluated by a psychiatrist or to be hospitalized. We hypothesized that ED clinicians can provide a brief intervention during the visit and that in-person or telephone counseling sessions after the ED visit can be used to reinforce the treatment received during the ED visit and to facilitate linkage with specialized care, thereby improving patient outcomes. ED-SAFE consisted of three phases of data collection (now complete, with analysis ongoing) and also included three rounds of surveys to providers at the eight participating EDs.

PIPER Contact: Marian Betz, MD, MPH (Site-PI)

Funder: National Institute of Mental Health

2011-2014

Lethal Means Restriction for Suicide Prevention: Beliefs and Behaviors of Emergency Department Providers

As part of the Emergency Department Safety Assessment and Follow-up Evaluation (ED-SAFE) study, ED providers completed three rounds of surveys. These surveys included a module on "lethal means restriction," or the restriction of access to medications and firearms. The purpose of this study is to learn the beliefs and behaviors of providers in EDs regarding lethal means restriction for suicide prevention.

PIPER Contact: Marian Betz, MD, MPH (PI)

Funder: American Foundation for Suicide Prevention

- 2011-2016 **Academic Centers for Excellence in Youth Violence Prevention**
- The overall aim of this grant is to develop an Academic Center of Excellence (ACE) in Denver to initiate a multifaceted, evidence-based approach to addressing youth violence. The study will enhance the body of research associated with studies on community-wide prevention efforts and will advance our understanding of "what works" at this level of implementation by targeting the reduction of youth violence in a high risk Denver community. Immediate and long-term goals are to reduce levels of youth violence, implement and evaluate a multifaceted, evidence-based primary prevention/intervention approach, provide training for junior researchers in a variety of related fields, provide training to medical practitioners to recognize and treat youth violence, and embed activities coordinated through the ACE into the existing community infrastructure of youth services to ensure sustainability after completion of the grant. The sites participating in this study are two of Denver's most high-risk residential neighborhoods: Montbello and Northeast Park Hill.
- PIPER Contact:** Eric Sigel, MD (Co-I)
Funder: National Center for Injury Prevention and Control
- 2013 **Means Restriction Education for Adolescent Suicide Prevention: A Quality Improvement Pilot Project at Children's Hospital Colorado**
- This project was designed to enhance the care of patients in the Psychiatric Emergency Service (PES) by implementing a structured protocol for addressing suicide prevention. Using an evidence-based approach, providers educated parents/guardians of children and adolescents seen in the PES about restricting access to medications and firearms and provided them with the means to better secure medications and firearms (e.g., lock boxes, trigger locks); this approach to suicide prevention is referred to as *means restriction*. All providers in the PES who handle discharge planning received standardized, on-line training developed in partnership with the Colorado Department of Public Health and Environment.
- PIPER Contact:** Carol Runyan, MPH, PhD (Co-I and lead evaluator)
Funders: The O'Shaunessy Foundation; Colorado Department of Public Health and Environment; Children's Hospital Colorado
- 2013-2017 **Reducing Youth Access to Firearms through the Health Care Setting.**
- This randomized control trial examines the implementation and effectiveness of an intervention, delivered in a health care setting, to decrease home firearm access by youth aged 12-17. Health care providers are initially trained to provide means restriction education to parents, focused on the risk of having access to firearms for youth who live in a home with firearms. Youth and their families will be screened for firearm access, complete a violence risk and depression screening survey, and be randomized to either a non-intervention control group, a group that receives means restriction counseling alone, or a group that receives means restriction education and free safe storage devices (lock boxes or trigger locks). Parental behaviors to follow firearm means restriction recommendations will be examined, as will whether the distribution of free lock boxes leads to greater reduction of firearm access compared to counseling alone. The implementation process will be assessed to guide future dissemination. We expect to demonstrate that the health care setting can be used effectively to reduce youth access to guns. By doing so, youth will have less opportunity to perpetrate crime using firearms and will be less likely to use a guns for self-harm or experience an unintentional shooting.
- PIPER Contacts:** Eric Sigel, MD (PI) and Carol Runyan, MPH, PhD (Co-I)
Funders: National Institute of Justice

2013-2018 **Nurse Family Partnership – Keeping Kids Safe and Families Healthy 2.0.**

The Nurse Family Partnership[®] (NFP) is a home visitation program for low-income mothers having their first babies. The goals are to improve pregnancy outcomes via enhanced prenatal health, to improve children’s health and development by helping parents provide competent care, and to improve economic self-sufficiency by helping parents make choices consistent with their values regarding their educations, work, and planning subsequent pregnancies. The NFP is grounded in the highest standards of scientific evidence and is of high clinical and social value, but always will be a work in progress. In the original trial of the NFP, there was found a reduction in the rates of substantiated reports of child abuse and neglect, and nurse-visited cases were identified at lower thresholds of severity. The current project incorporates these findings: its aims are to increase statewide NFP referrals of Medicaid eligible pregnant women bearing first children, increase voluntary NFP enrollment rates, consolidate NFP nurses’ skills in the primary prevention of child abuse and neglect and in reducing maltreatment recidivism among those identified as having abused or neglected their children, and strengthen child welfare agencies’ understanding of the value of collaborating with NFP nurses to address the needs of families in which maltreatment appears imminent or has occurred.

PIPER Contact: Gregory Tung, MPH, PhD (Co-I)
Funder: Colorado Department of Human Services

OTHER: INFRASTRUCTURE DEVELOPMENT/TRAINING

2000-2013 **Injury Prevention Activities at UCDHSC, Colorado Injury Control Research Center**

The purpose of the Colorado Injury Control Research Center (CICRC) is to reduce the occurrence, severity, and adverse consequences of injuries through research, education, and service, primarily in Public Health Service Region VIII, which includes Colorado, Wyoming, Montana, South Dakota, Utah and North Dakota. 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. In addressing these injury issues, emphasis is placed on reducing disparities in injury outcomes while working in community partnerships alongside underserved populations. The CICRC also values innovation in education, training, community programs, and research, as well as identification of evidence-based, efficient approaches to preventing injuries. This CICRC subcontract covers injury prevention activities at University of Colorado Denver Health Sciences Center.

PIPER Contact: Carolyn DiGuseppi, MD, MPH, PhD (Deputy Director of Center)
Funder: Centers for Disease Control and Prevention, Colorado Injury Control Research Center

2003-2016 **National Research Service Award**

The National Research Service Award training programs are designed to train individuals to conduct research and to prepare for research careers. Institutional NRSA programs allow the Program Director to select the trainees and develop a program of coursework, research experiences, and technical and/or professional skills development appropriate for the selected trainees, providing high-quality research training and offering opportunities in addition to conducting mentored research. This program at UC-Denver trains physicians in outcomes and health services research methods.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (Program Director)
Funder: Health Resources and Services Administration

2011-2015

Monitoring Services for Tribal Injury Prevention Cooperative Agreements – Training Workshop Component

The Tribal Injury Prevention Cooperative Agreement Program (TIPCAP) provides funds to American Indian and Alaska Native Tribal organizations to develop their infrastructure and capacity in injury prevention. Econometrica assists the Indian Health Service (IHS) by serving as an outside monitor, providing oversight and technical assistance to the 33 current TIPCAP grantees in support of IHS's priority of increasing accountability. Econometrica is responsible for a variety of rolls related to training, resource development, and technical assistance, including annual site visits. Subcontracted by Econometrica, the PIPER program is responsible for planning and participating in an annual 2-day training workshop for grantees.

PIPER Contact: Carol Runyan, MPH, PhD (PI)

Funder: U.S. Indian Health Service, through a subcontract with Econometrica

2013-2018

Developing Infrastructure for Patient-Centered Outcomes Research at Denver Health

The proposed Center for Health Systems Research at Denver Health, an integrated safety net health system, directly addresses two national priorities for patient-centered outcomes research: addressing disparities and improving healthcare systems. The Center will partner with an academic research unit and an applied healthcare research organization to develop a research infrastructure and to create collaborations that will sustain meaningful patient-centered outcomes research well into the future. Such infrastructure includes teaching and mentorship and development of a cross-institution data integration structure that will connect the Center with much larger research networks. Specific projects target the "healthcare required to achieve best outcomes" among socioeconomically disadvantaged groups, including racial and ethnic minorities; designs effective in a safety net can inform high-value design in other systems.

PIPER Contact: Ingrid Binswanger, MD, MPH, MS (Co-I, Director of PCOR Scholars Program)

Funder: U.S. Department of Health & Human Services, Agency for Healthcare Research and Quality



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Training

Teaching & Mentoring

During the past year, we have continued efforts to engage more students in the topic of injury prevention, while also mentoring junior faculty, fellows, and residents as they develop their work.

Teaching & Student Training

In 2013, PIPER core faculty were involved in a number of teaching activities, including classroom teaching of undergraduate, medical, and graduate students, as well as mentoring of graduate student projects (e.g., dissertations as well as practica and capstone projects). In addition, we combed through course listings to identify classes that may have injury content and contacted relevant faculty to learn more, an effort that resulted in a list on our website of courses that may be of interest to our students.

Some classroom teaching is focused on injuries – for example, Dr. DiGuseppi’s course, “Injury and Violence Epidemiology and Prevention,” which is a required course for students in the M.S. Epidemiology program and open to all students in the Colorado School of Public Health. Other courses taught by PIPER faculty have a broader focus but incorporate injury content, exposing a broad array of students to the field. Examples include Dr. Runyan’s four-semester seminar for DrPH students and “Foundations of Public Health,” taught to MPH and certificate students, Drs. DiGuseppi and Comstock’s undergraduate “Introductory Epidemiology,” and Dr. DiGuseppi’s graduate-level “Introduction to Systematic Reviews.” In addition, Dr. Comstock also taught the MPH Capstone course and Dr. Binswanger is Co-Director of the Correctional Care Elective for medical students, covering injury topics in the curriculum.

PIPER faculty are also often invited to give guest lectures on injury topics in courses focused on maternal and child health, health policy, or in a wide variety of professional programs (e.g., Dr. Betz teaches about intimate partner violence to physical therapy and medical students and about global injury to students learning about global public health). Our goals are to expose as many students as possible to basic injury concepts and, in the process, identify students interesting in studying injury in more depth.

Faculty, Fellow, & Resident Mentoring

In addition to teaching and training students, mentoring is also a critical element of our work, as more senior scholars assist junior faculty, fellows, and residents in developing their work.

For example, in 2013, Drs. Runyan and Tung worked with a fellow in Pulmonary Pediatrics on a study of safe sleep, while Drs. Comstock and Runyan worked with several fellows in Pediatric Emergency Medicine on topics ranging from home safety to concussions in sports. Dr. Betz regularly teaches residents and fellows in emergency medicine on care of injured patients, and Dr. Sigel directs the Adolescent Medicine Fellowship in Pediatrics while overseeing their training seminar series, including multiple topics on injury and violence prevention. Dr. Binswanger is an attending physician in adult medicine, training residents; she also directs the Primary Care Research Fellowship Program and serves as Primary Care Residency Research Director for the Primary Care Internal Medicine Residency Program. Dr. Binswanger was also mentor to two PCOR Scholars and serves on the career development advisory committee for a K23 grantee, Brendan Clark. Dr. DiGuseppi directs the Preventive Medicine Residency Program in the Department of Family Medicine and oversees their seminar series and journal club, which regularly include presentations and reviews of scientific studies on injury and violence epidemiology and prevention.

Faculty mentoring within PIPER is also strong: Dr. DiGuseppi serves as a member of the Advisory Panel for Dr. Betz’s Paul B. Beeson Clinical Scientist Development Award in Aging focused on physician screening of older drivers, while Dr. Runyan mentors a number of junior faculty on career development, including Drs. Sigel and Tung, as well as others from Pediatrics. She regularly meets with junior and mid-level faculty in Emergency Medicine, providing guidance on research development.

Student Projects

Students are involved in many of the research projects led by faculty and an increasing number are developing their own projects as the volume of activity on campus grows. Examples of 2013 student projects include:

- *Talia Brown, MSPH* – PhD student in epidemiology developing her dissertation on methods used for suicide attempts as a function of cultural influences and collaborating on a project to develop a database of child injury measurement instruments (Runyan).
- *Michael Frank* – medical student, studying the health of former prison inmates (Binswanger).
- *Erin Martinez, MSPH* – PhD student in epidemiology, doing dissertation research on the epidemiology of prescription opioid abuse (DiGuseppi, Comstock).
- *Marie McKinnon* – medical student, HPV vaccination in prisons (Binswanger).
- *Kathryn Marie Nowotny* – PhD student in sociology doing dissertation research on the health and healthcare of incarcerated adults. (Binswanger).
- *Ken Scott, MPH* – PhD student in epidemiology initiating a dissertation project to examine fall risk, falls, and fall-related disability in aging workers; Ken also completed a field methods project to design a research protocol for a systematic review assessing the use of smartphones and tablets to measure human movement, including falls. (DiGuseppi).
- *Suzuho Shimisaki, MPH* – DrPH student in community and behavioral health working on a dissertation project to create measures for racial inequalities (Tung).
- *Norbert Soke, MD, MSPH* – PhD student in epidemiology doing dissertation research on trends and risk factors for self-Injurious behavior (SIB) in children with autism spectrum disorders (ASD) (DiGuseppi).
- *Livia Tsie* – medical student exploring patient-centeredness and opioid use (Binswanger).
- *Ryan Tucker* – medical student, completing a mentored research project on the relationship between homelessness and suicide among veterans (DiGuseppi).



Selected Presentations

PIPER strives to provide injury-related learning opportunities on a regular basis. PIPER's Injury and Violence Seminar Series is open to the public, while the Injury and Violence Research and Evaluation (IVRE) group provides a more focused professional development opportunity for injury researchers. PIPER faculty are also engaged in numerous workshops and training activities related to their areas of interest. In 2013, PIPER faculty gave presentations on campus, in the local community, regionally, and at national and international meetings. Topics and audiences were diverse. A few examples are listed below:

Housing & Injury	DiGuseppi C. Housing Interventions and Health: A Review of the Evidence. Colorado Healthy Homes – A Call to Action, Denver, CO.
Injury Policy	Runyan CW & Tung GJ. Varied Approaches to Injury Prevention Policy Research and Evaluation. South by Southwest Region Injury Control Network Webinar. Tung GJ, Comstock RD, and Fields S. State Legislation to Address Concussion in Youth Sports: Current Status and Future Directions. The American Public Health Association 151st Annual Meeting, Boston, MA, 2013.
Sports Injury	Comstock RD. High School Sports-Related Injury: Recent Trends and Research Findings. Invited speaker, National Youth Sports Safety Summit, Washington D.C. Comstock RD. It's Not Just a Ding: Concussion as a Public Health Concern. Invited speaker, 1st Annual Colorado School of Public Health Public Health Exchange, Aurora, CO.
Substance Abuse	Binswanger IA. Harm Reduction Behind Bars (Roundtable). The International Drug Policy Reform Conference, Denver, CO. Binswanger IA. Preventing Youth Opioid Use and Overdose. Denver Town Hall Event, Denver, CO.
Suicide	Betz ME. Identification and Care of Suicidal Emergency Department Patient. Columbia/Cornell Emergency Medicine Residency, New York, NY. Betz ME. Using Epidemiology for Suicide Prevention: The Relationship Between Altitude and Suicide in the United States. Regis University, Denver, CO.
Violence	Runyan CW & Tung GJ. Violence as a Public Health Problem: A CSPH Discussion. PIPER Program and Colorado School of Public Health, Aurora, CO. Sigel EJ. Cyberbullying. Children's Hospital Colorado Lunch and Learn, Aurora, CO. Sigel EJ. Addressing Youth Violence in the Health Care Setting. National Commission on Correctional Health Care National Conference, Denver CO.

Injury & Violence Seminar Series

PIPER continued its successful series of injury and violence seminars in 2013, sparking interest in a wide range of critical topics:

- January 31 **Preventing Injuries to Children in the Context of Promoting Maternal and Child Health: randomized controlled trials of the Nurse Family Partnership**
David Olds, PhD, Professor of Pediatrics and Director, Prevention Research Center for Family and Child Health, University of Colorado Denver
- February 28 **Emerging Concepts in Opioid Overdose Prevention**
Ingrid Binswanger, MD, MPH, Associate Professor, Internal Medicine, University of Colorado School of Medicine
- March 26 **Colorado's Trauma System: Success or Failure?**
Gregory J. (Jerry) Jurkovich, MD, Chief of Surgery, Denver Health Medical Center
- April 25 **Suicide Trends Among American Indians/Alaska Native and Translating a Mindfulness-based Suicide Prevention Curriculum in an American Indian Community**
Lorann Stallones, MPH, PhD, Professor, Department of Psychology, Colorado State University
- April 29 **What Every Public Health Professional Should Know About Child Abuse**
Desmond Runyan, MD, DrPH, Executive Director of the Kempe Center for the Prevention and Treatment of Child Abuse and Neglect
- May 20 **Colorado's Trauma System: Success or Failure? (Part 2)**
Gregory J. (Jerry) Jurkovich, MD, Chief of Surgery, Denver Health Medical Center
- August 22 **More green, less crime: can urban blight reduction improve health and safety?**
Charles C. Branas, PhD, Professor of Epidemiology and Director of the Cartographic Modeling Laboratory, University of Pennsylvania
- September 13 **Who Killed Chris He? Understanding the Multi-Causality of Cycling Dooring Injury**
Hank Weiss PhD, Professor, Dunedin School of Medicine, University of Otago
- October 7 **Advancing Health Equity & Community Health: A Strategic Prevention Approach**
Larry Cohen, MSW, Executive Director, The Prevention Institute
- November 19 **The Public Health Impact of Suicide in Colorado: Prevention and Intervention Strategies**
Jarrod Hindman, MS, Suicide Prevention Unit Manager, Colorado Department of Public Health and Environment

Activities

In Professional Service

INTERNATIONAL		
Institute of Work, University of Toronto, Toronto, Ontario	Consultant, child labor project	Runyan
International Labor Organization (United Nations), Geneva, Switzerland	Reviewer, child labor documents Consultant, “Brick Kiln Studies” to improve child labor conditions in Bangladesh, Pakistan, Nepal, and Afghanistan	Runyan
University of Guelph, Guelph, Ontario	Consultant, pediatric fall prevention project (PI: Morrongello)	DiGuseppi

NATIONAL		
Academic Consortium on Criminal Justice Health	Member, Board of Directors	Binswanger
Academic and Health Policy Conference on Correctional Health	Member, National Advisory Group	Binswanger
American Foundation for Suicide Prevention	Invited Participant, consensus process on improved identification of suicidal ED patients	Betz
American Public Health Association	Elected Section Councilor, Injury Control and Emergency Health Services Section	Betz
American Public Health Association	Member, Recreation and Sports Injury Subcommittee	Comstock
National Federation of State High School Associations	Ex-Officio Member, Sports Medicine Advisory Committee	Comstock
National Institute for Occupational Safety and Health (NIOSH)	Consultant, to Research Triangle Institute for the Safe Skilled-Ready Workforce Initiative	Runyan
National Collegiate Athletic Association - Injury Surveillance System	Member, Independent Review Committee	Comstock
Pew Charitable Trusts	Consultant, health impact project	Tung
Safe States and Society for the Advancement of Violence and Injury Research	Member, Expert Evaluation Panel, project on evaluating state injury control programs	Runyan
Society for Academic Emergency Medicine, Academy of Geriatric Emergency Medicine	President Previous Member-at-Large	Betz
Society for the Advancement of Violence and Injury Research	Member, Board of Directors Chair, Council of Centers Member, Training and Infrastructure Committee	Runyan
Society for the Advancement of Violence and Injury Research	Member, Scientific Advisory Committee	Tung, Sigel
Society for the Advancement of Violence and Injury Research	Invited Participant, Nominating Committee, convened to identify new board members	Comstock
Society for General Internal Medicine	Co-founder, Criminal Justice and Health Interest Group	Binswanger
Suicide Prevention Resource Center	Invited Participant, consensus process on the safe discharge of ED patients with suicide risk, RAND ExpertLens study	Betz

STATE/LOCAL		
CEDAS Trust USA	President, Board of Directors	Binswanger
Center for Personalized Education for Physicians	Consultant	Binswanger
Children’s Hospital Colorado	Consultant, Community Health Advocacy Institute Consultant, Injury Program	Runyan
Cincinnati Home Injury Prevention and Literacy Promotion Trial	Chair (Runyan), Data Safety Monitoring Board Member (DiGuseppi), Data Safety Monitoring Board	Runyan DiGuseppi
Colorado Consortium for Prescription Drug Abuse Prevention	Co-Chair, Public Awareness Committee	Runyan
Colorado Consortium for Prescription Drug Abuse Prevention	Co-Chair, Data/Analysis Subgroup	Binswanger
Colorado Department of Public Health and Environment	Consultant Member, Advisory Committee, Injury Control Program Member, Leadership Action Committee, and Program Evaluator, “Implementation of Essentials for Childhood: Safe, Stable, Nurturing Relationships and Environments” Member, Surveillance Advisory Committee, Occupational Safety and Health	Runyan
Colorado Department of Public Health and Environment	Member, Core Violence and Injury Prevention Program Advisory Committee Member, Colorado Violent Death Reporting System Advisory Committee	DiGuseppi
Colorado Department of Public Health and Environment	Member, Injury, Suicide and Violence Prevention Policy Committee	Betz, DiGuseppi
Colorado Department of Public Health and Environment and Children’s Hospital Colorado	Evaluator, Means Restriction Counseling for Suicidal Patients	Runyan
Friends of the Haven	Member, Board of Directors	Binswanger
Gang Reduction Initiative of Denver	Member, Advisory Committee	Sigel
Injury Prevention Research Center, Mt. Sinai School of Medicine	Member, Advisory Board	Runyan
Injury Prevention Research Center, University of Iowa	Member, Advisory Board	Runyan
Johns Hopkins University, West Virginia University	External Reviewer, university promotion reviews	Runyan
University of Colorado School of Medicine	Chair, Suicide Screening Program Implementation Committee, Department of Emergency Medicine Emergency Medicine Liaison, Mentored Scholarly Activities Program	Betz

EDITORIAL/REVIEW SERVICE*		
American J. of Preventive Medicine	Member, Editorial Board	Runyan
Asian Journal of Exercise and Sport Science	Member, Editorial Board	Comstock
Cochrane Library	Co-Editor, Injuries Review Group	DiGuseppi
Encyclopedia on Criminology and Criminal Justice	Area Editor, Correctional Health	Binswanger
Health and Justice	Member, Editorial Board	Binswanger
Injury Epidemiology	Member, Editorial Board	Runyan, Comstock
Injury Prevention	Senior Blog Editor	Tung
Injury Prevention	Member, Editorial Board	DiGuseppi
Institute of Medicine	Reviewer, "Sports-Related Concussions in youth: Improving the Science, Changing the Culture"	Comstock
Journal of Athletic Training	Member, Editorial Board	Comstock
National Operating Committee on Standards for Athletic Equipment	Grants Reviewer	Comstock
National Research Council and Institute of Medicine of the National Academies	Reviewer, "Health and Incarceration: A Workshop Summary"	Binswanger
American College of Physicians	Editorial Consultant, "Opiate Abuse," in Physicians' Information and Education Resource	Binswanger
Society for Adolescent Health and Medicine	Member, Violence Prevention Advisory Group	Sigel
Society for General Internal Medicine	Reviewer, SGIM Best Research Paper Award	Binswanger
Substance Abuse	Associate Editor	Binswanger

*In addition to the service listed, PIPER faculty are dedicated manuscript reviewers for numerous academic journals.

Future

Looking Forward

During the past year, we did a careful review of the injury statistics in our region. They reveal that the Mountain West has particularly high rates of injury mortality and demonstrates significant non-fatal injury problems, as well as ethnic disparities and extremely high associated costs. However, despite the high need, our region's injury prevention capacity is underdeveloped.

As we look to 2014, we remain committed to providing leadership in injury prevention in the region, as well as nationally, by continuing to nurture the PIPER Program. This includes expanding and enhancing our work to date, while continuously reaching out to engage new scholars and practitioners and further increase our capacity. We have been expanding our collaborations with the Colorado Department of Public Health and Environment and have made initial contact with every state health agency within the region. Over the next year we hope to expand these collaborations even further to advance practice and inform research.

Over the coming year, we will continue to give priority to issues that affect families with children and youth, while also expanding to address important topics affecting adult populations. Our focus remains on the primary prevention of injury and violence problems, though we welcome opportunities to partner with colleagues to address improvements in systems of care. One emerging area of interest relates to the legalization of recreational marijuana in Colorado. Over the coming year, we envision developing new research on this topic to understand the implications for injury, including traffic safety, occupational injury, unintentional poisoning, and overdose, as well as implications for child maltreatment. We also are looking to expand efforts in advancing the practice of Health Impact Assessments as a means of guiding community-based injury prevention, building on Dr. Tung's initial work and expertise.



We will continue to actively engage more students and fellows in our work. They bring energy and enthusiasm to all that we do while we help them prepare to be leaders in our field.

We also value the excellent partnerships we have developed with practitioner colleagues and hope to continue to build on those relationships as we work together to improve the public health infrastructure to address injury, increase public awareness of injury and violence as critical public health issues, support public and private policies that enhance safety, and continue to prepare the next generation of leaders and scholars. On campus, we will continue provide forums in which faculty, staff, and community partners can seek guidance from each other on solving problems and developing new initiatives, through topic-specific discussions and our seminar series.

While wanting to grow in a measured way, we need to maintain a wide angle view that allows us to nimbly take advantage of opportunities that fit within our mission while building new partnerships both on our own campus and throughout the state, region, and nation. We are expanding our fundraising from foundations, corporations, and donors interested in helping us achieve our mission and have developed a menu of options for funders to assist us in supporting our work.

Get Involved

Support our programs

Join PIPER in preventing child and adolescent injury. Through financial support, you can help us provide scholarships to graduate students studying injury, offer cutting-edge training to the injury prevention workforce, and support new discoveries through our research agenda. Visit www.ucdenver.edu/piper to learn about giving opportunities.

Join our mailing list

At www.ucdenver.edu/piper, you can subscribe to the PIPER listserv to learn about upcoming events, activities, and news.

Follow us on Twitter

Follow @PIPERcolorado to stay up to date on the latest injury-related news, events, and updates.

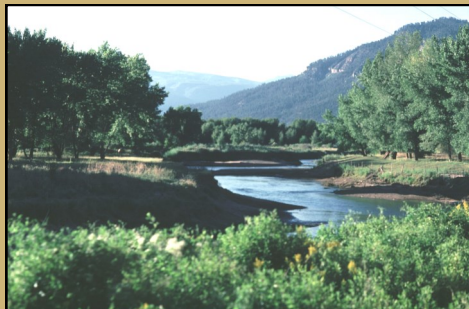
Become a partner

Contact Sara Brandspigel at sara.brandspigel@ucdenver.edu if you would like to partner with PIPER on research, evaluation, training, or programmatic activities.



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