

Proposal for the Creation  
of  
**The UAB Transportation Safety, Trauma Care  
& Injury Research Institute**

Submitted by the UAB School of Medicine

**Genesis of the Application:** This application was prepared on behalf of the School of Medicine by senior faculty from the Department of Medicine's Injury Control Research Center and the Department of Surgery's Center for Injury Sciences ("the applicants").

**Purpose of the Application:** The applicants seek a UA System Board of Trustees Resolution establishing "The UAB Transportation Safety, Trauma Care & Injury Research Institute" a unique, world-class research and clinical care entity.

**Mission of the Institute:** To address and resolve high priority transportation safety, trauma care and injury control research questions and problems, especially those associated with all forms of human conveyance: vehicular, air, water and rail.

**Goal of the Institute:** To become the 21<sup>st</sup> Century's "Gold Standard" against which all other transportation safety, trauma care and injury control research initiatives, nationally and internationally, will be measured.

**Objective of the Institute:** To achieve statistically significant reductions in injury-related morbidity, mortality and disability statistics and as well as a statistically significant reduction in the economic impact of traumatic injuries, especially those which are transportation-related.

**Process:** In support of its Mission, Goal and Objective, Institute faculty and staff will conceptualize, implement, coordinate, manage, evaluate and modify, as necessary, projects and programs that will eventually address virtually every appropriate aspect of the injury phenomenon, with special emphasis on those which are transportation-related.

**For these purposes:**

***Transportation Safety*** implies *systems* that work in concert to prevent untoward transportation events: e.g. vehicular design, the man-machine interface including behavioral considerations, and the infrastructure or environment within which these systems operate.

**Trauma Care** implies the 24-7-365 provision of general trauma, orthopedic trauma, neurotrauma, plastic/reconstructive, and oral-maxillofacial surgical services, trauma anesthesiology, trauma critical care, hyperbaric medicine and radiology/trauma imaging.

**Injury Research** or **Injury Control Research** implies a constellation of effort directed at reducing the extent, severity and long-term consequences – both human and financial – of those injury producing events which are not or cannot be prevented.

### **Background and Rationale:**

In its landmark report to Congress, Injury In America, The Institute of Medicine's Committee on Trauma prefaced an exhaustive study with its unequivocal statement: "Injury is the principal public health problem in America today; it affects primarily the young and will touch one of every three Americans this year" (1). This characterization underscores our premise that the need for cutting edge, breakthrough research, training, education and service addressing this critical issue is not arguable.

### **Community Need : Magnitude & Impact of The Problem:**

In the United States, motor vehicle crashes are the leading cause of death for more than half the human life span. In addition to car and truck occupants, motorcycle, bicycle, scooter riders, and even pedestrians are catastrophically injured and killed at alarmingly high rates.

Taking all forms of transportation into consideration, the economic costs of system failures and the resulting injuries and deaths are staggering. Similarly, 'costs' of the short-, mid- and long-term psychological burden to the injured, their families and society as a whole, as well as other consequences of injury border on being inestimable.

In the US, traumatic injuries, whether UNINTENTIONAL (e.g. vehicle crashes) or INTENTIONAL (homicide) kill more people 45 years of age and under than any other cause or disease, including heart disease, cancer and strokes. Moreover as revealed from injury data contained in the CDC's WISQARS Database (2) :

- the Southeastern United States has a significantly higher overall rate of *unintentional deaths* when compared to the rest of the nation; **BUT, Alabama's unintentional death rate is significantly higher than the Southeast's and the nation's as a whole.**

Further, the vast majority of the *unintentional deaths* are transportation-related, with an astonishing 40% being motor vehicle crash (MVC) related. For example:

- the Southeastern United States has a significantly higher rate of **motor vehicle crash deaths** when compared to the rest of the nation; **BUT, Alabama's motor vehicle crash death rate is significantly higher than the Southeast's and the nation's as a whole.**

When considering ***intentional traumatic injuries***, specifically those resulting in death (homicide), the statistics are equally appalling:

- the Southeastern United States has a significantly higher overall rate of deaths resulting from homicide when compared to the rest of the nation; **BUT, once again Alabama's homicide death rate is significantly higher than the Southeastern United States and the nation's as a whole.**

Statistics such as these often come as a surprise to those unfamiliar with injury surveillance data and those who have never had reason to consider the impact of injuries in our society. Yet, injury data speak for themselves because the impact of no other disease even comes close to that of injuries; not heart disease, not stroke, not AIDS and not even cancer. And, what of the direct and indirect economic costs of transportation related injuries and deaths or the costs resulting from the psychological burden, emotional toll and associated long-term consequences of trauma

Consider: In calendar year 2004, traumatic injuries occurring during that 365 day period cost American society \$574.8 billion dollars. That staggering figure does not include ongoing, future costs associated with the injuries occurring in 2004 to injury victims who continue to survive, thus continuing to incur direct and indirect costs in all subsequent years of their lives.

Practically, a figure approaching \$575 billion dollars, while obviously enormous, is almost impossible to fathom. So, to put it in a more meaningful perspective we selected the cost of the Iraq War (which began only four years ago, in March, 2003) as the frame-of-reference.

This is what we discovered: According to the highly credible *National Priorities Project Cost of Iraq War Calculator*, the war's cost will reach \$378 billion dollars by March 31<sup>st</sup>, 2007 (which is the halfway point of FY 2007), a figure nearly \$200 billion less than 1 year of injury-related costs in the US.

### **Human & Physical Resources Available To Achieve The Institute's Purpose**

At UAB there are pockets of highly-regarded scientists and clinicians who, collectively, represent the near critical mass of disciplines and experiences needed to successfully challenge this enormous problem. Many UAB scientists and clinicians have already achieved enviable track records in various aspects of injury biology, trauma care and injury control research. Others have great potential that is yet to be realized or in many cases, even recognized. This is due, in large part, to a situation at UAB described by a high profile, extramural site visitor as

*“a talented but largely amorphous injury control research environment.”*

The visiting scientist whose assessment is reflected in the statement came to understand, rather quickly, that at UAB many highly relevant - yet disparate scientific

activities - in the area of transportation safety, trauma care and injury research had never been organized, planned and managed in a systematic, logical and cohesive manner. As a result, UAB has not realized the existing or potential capacity of the vast reservoir of resources that could be called upon immediately to help address the many and varied aspects of transportation safety, trauma care and injury research. Moreover, while it is true that many UAB researchers and resources are found throughout the School of Medicine, there are also significant resources in other UAB schools as well as important linkages with other prestigious research universities, private sector entities and key government agencies.

Given the impact of traumatic injury on all aspects of the human experience coupled with the near limitless intellectual potential that exists at UAB, it becomes unthinkable, if not professionally immoral, for leaders of this great medical research center to allow the *status quo* to continue unchallenged.

The applicants posit that formal 'Institute' designation and early financial support will illustrate a great institution's visionary commitment to pursue an area of scientific endeavor which has the potential to have a profoundly enormous, positive impact on the human experience in general, and the public's health in particular, especially in Alabama and the southeastern United States.

By taking the initial step of establishing 'the Institute,' UA System Trustees will encourage and even enable UAB to consolidate a disparate array of clinical, field and laboratory research, education and training initiatives being conducted throughout the campus under the umbrella of a single dedicated entity. Then, the Institute will become the locus of research and applications required to help achieve its ambitious objective.

The institutional commitment will require that adequate intellectual and financial resources be made available to the effort, especially during its early years so as to assure its long-term viability. But, *if this needs to be done – and it does – it is worth doing well and funding adequately.* Seizing this opportunity will help UAB achieve its goal of becoming one of the Top Ten Research Institutions in the United States by 2010.

The annals of academia are replete with failed examples of well-intentioned attempts to rely on bricks and mortar to be the primary stimulus or driver for program development. However, it has been demonstrated, historically at UAB, that bricks and mortar are not essential organizing components of cutting-edge, collaborative and cooperative research. For example, between 1999 and 2004, the Mercedes-Benz sponsored CIREN\* Program, headquartered within UAB's Center for Injury Sciences, engaged faculty from throughout the Schools of Medicine, Engineering and Public Health. Currently, faculty from the School of Public Health are key contributors to the research mission of the CIS.

Further, leaders of the Injury Control Research Center (ICRC), the Southern Consortium for Injury Biomechanics (SCIB), and the recently designated University

Transportation Center have successfully promoted the “*centers without walls*” concept since the late 1980s. This idea identifies, stimulates and coordinates complementary research projects and researchers by simply ignoring artificial encumbrances to collaboration, such as different campuses, schools, departments and divisions. Rather, we have encouraged and embraced the concept of a *wall-less* entity whose seamless transparency stimulates cooperation, collegiality and collaboration. We have proceeded in this manner rather than doing nothing because there was no dedicated building or space in which ‘something’ could be pursued. In fact, we posit that there are few if any, better examples of how this is possible than the model provided by the UAB Injury Control Research Center (ICRC) and its biomechanics component, the Southern Consortium for Injury Biomechanics (SCIB).

Leadership proposing creation of the Institute know how to do that which must be done to establish and nourish this campus-wide initiative; and, we think we know how to do it as well or better than virtually any other group on campus. We have done it well, having overcome substantial resistance and great odds in the process. Our approach has been and will continue to be simple and straight-forward: We will identify, organize and energize a cadre of talented scientists and clinicians at UAB who could and should be part of this effort. We will relegate to an appropriate time in the future, space considerations and related concerns until we, as an Institute, define and fully understand the ingredients necessary for the care and nurturing of optimal relationships between the components. We suggest a simple way to think of our approach is “form following function.”

Finally, the research activities of ‘The Institute’ will compliment and have the potential to foster future trauma care initiatives in Alabama. This might well entail a collaborative network of other trauma hospitals in Alabama such that a broad cross-section of injured Alabamians might be enrolled in clinical research projects. Also, the attention and acclaim associated with a successful Institute will likely simulate philanthropic support for a dedicated trauma care facility that could be closely integrated with The Institute.

### **Governance**

In its formative years, day-to-day activities will be led by two Co-Directors, Dr. Russ Fine and Dr. Loring Rue. Both Drs. Fine and Rue bring unique training and experience to the table in areas that are critical to the successful establishment and operation of an Institute having this programmatic magnitude.

They and two Associate Directors, working in concert with high-level University and Health System officials, will be responsible for the successful execution of those activities required to implement and operate the Institute. Specifically:

Drs. Fine and Rue will report directly to Dr. Robert Rich, Dean of the School of Medicine. To expedite day-to-day matters pertaining to the ‘Institute, two Senior Associate Deans in the School of Medicine, Dr. Robert Kimberly, Senior Associate Dean for Research, will advise Drs. Fine and Rue regarding the Institute’s research

agenda; and, Mr. Allen Bolton, Senior Associate Dean for Finance and Administration will provide oversight of and assistance with administrative and financial matters. These recommended assignments mirror, in large part, that which we understand to be Dr. Kimberly's and Mr. Bolton's current SOM-wide responsibilities.

Other Medical School units conducting transportation safety and injury research will report, as part of their assignment, through Drs. Rue and Fine to Dr. Kimberly and Mr. Bolton acting on behalf of Dr. Robert Rich, Dean, School of Medicine.

Given this organizational arrangement, all transportation safety and injury-oriented research will benefit from having the structural advantage of existing under a single coordinating umbrella. The Co-Directors (Drs. Fine and Rue) will be in a position to encourage collaboration between existing scientists and/or research teams, when appropriate opportunities are identified.

This proposed organization assures that "existing units" (e.g. The ICRC, SCIB, and the UTC; the CIS; etc.) are able to maintain their current operational autonomy within an administrative superstructure that makes sense on paper (e.g., in extramural grant applications), and which emphatically illustrates that UAB's transportation safety, trauma care and injury research activities operate within a larger, mission-driven entity.

By proceeding this way, the inviolability of existing programs, currently residing in different schools and departments is preserved and eligibility for future Federal Agenda funding opportunities will be enhanced, at least in part, on the basis of documented accomplishments of the individual units operating under the organizational umbrella of the Institute.

At this point it must be acknowledged that the only discipline not represented on current UAB or UA System faculty is a world-class impact biomechanist. However, informal, preliminary discussions regarding possible interest in moving to the State of Alabama and affiliating with UAB if an Institute is established have taken place with two young, highly accomplished scientists who are considered by workers in the field to be "superstars."

We cannot overstate the enormous benefit associated with recruiting either of the biomechanists, alluded to in the previous paragraph, to the UAB-based Institute. However, that which we do know is that the affiliation of either establishes instant credibility for UAB in the international marketplace of injury / impact biomechanics research. Suffice to say, moving from concept to implementation is highly doable, **if**, the Institute is able to attract world class scientists. This challenge can be met if there is an institutional commitment to its success.

For these purposes, faculty from UAB schools, other than Medicine (e.g. Engineering) who participate in programs of the Transportation Safety, Trauma Care & Injury Research Institute activities will fall under the operational authority of the Co-Directors. The aforementioned faculty members (whose primary appointments are in other UAB

schools) should be awarded secondary “School-Wide” appointments in the School of Medicine. Other structural arrangements should include:

- The appointment of an internal Institute Advisory Committee consisting of representatives of various participating bodies, schools, departments, centers and divisions;
- The appointment of an external Scientific Review Committee to (a) provide advice and guidance pertaining to the Institute’s research agenda: and, (b) to act as an Institute Study Section that reviews and provides feedback on research proposals and clinical protocols.

(\* ) CIREN : Crash Injury Research & Engineering Network

## References

- (1) Injury In America: A Continuing Public Health Problem. Committee on Trauma Research. Commission on Life Sciences National Research Council and the Institute of Medicine. National Academy Press Washington DC, 1985
- (2) Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2005) Available from URL: [www.cdc.gov/ncipc/wisqars](http://www.cdc.gov/ncipc/wisqars)