



2020 Stepping Strong Innovator Awards: Request for Applications

The Gillian Reny Stepping Strong Center for Trauma Innovation (the Stepping Strong Center) announces the **2020 Stepping Strong Innovator Awards Request for Applications**. The awards fund research and innovation to prevent traumatic injury before it occurs, to improve the treatment and care of traumatic injury when it does occur, and to ensure its associated recovery. The Stepping Strong Center funds high-reward projects by the best, most creative and collaborative physicians, bioengineers, and bench researchers working on these trauma-related topics. Preference in the application process will be given to multidisciplinary, multi-institutional projects with teams of collaborators with at least one member at Brigham and Women's Hospital (the Brigham) or Massachusetts General Hospital (MGH).

The Stepping Strong Center expects to provide several Innovator Award grants of up to \$100,000 each in 2020 in the following areas:

- Clinical innovation
- Injury prevention
- Basic science
- U.S. Military Priorities

Please read the entirety of this document. The "Application Process" section below details explicit instructions regarding proposal submission, timeline, eligibility, and review process.

Areas of Focus

All Stepping Strong Innovator Award proposals must align with the mission the Stepping Strong Center:

The Gillian Reny Stepping Strong Center for Trauma Innovation seeks to catalyze multidisciplinary collaborations that inspire groundbreaking innovation, effective prevention, and compassionate intervention to transform care for civilians and military heroes who endure traumatic injuries and events.

Applicants are strongly urged to review the Stepping Strong Center website at: BWHsteppingstrong.org, which includes pertinent information about currently-funded areas, our leadership team, and research progress achieved over the past six years, as detailed in the [Stepping Strong Annual Reports](#).

The Stepping Strong Center funds patient-centric, innovative projects with an emphasis on: (1) advancing new approaches to trauma research and clinical care; (2) training current and future generations of healthcare professionals in the treatment of complex traumatic injuries; (3) creating programs that educate society about traumatic injury and its prevention; and (4) furthering advocacy efforts to expand research, raise awareness, and prevent traumatic injuries from occurring.



Project Expectations

Proposals must present a well-articulated project plan that identifies an unmet clinical need. Applications that focus on accelerating the translation of an innovative idea into a clinical setting through a multidisciplinary, collaborative approach will be given top consideration.

That said, the Stepping Strong Center will accept proposals for a broad range of research ideas, innovations, or programmatic approaches and ideas that include, but are not limited to, the following examples.

Clinical Innovation

- **Innovations or research projects that integrate robotics or autonomous systems to treat and rehabilitate patients with traumatic injury.** Ideas include robotic surgery, micro-robotics for in-body treatment and/or targeted drug delivery, robotic caregivers for injury patients, autonomous systems built into prostheses, limb-aids or exoskeletons, and autonomous systems that help healthcare professionals with operationally challenging tasks such as remote medication dispensing, physical therapy, treating infections, collect stem cells, or patient transportation.
- **Innovations and research that utilize data analytics, artificial intelligence, and machine learning to improve the treatment and care of traumatic injury patients before hospitalization and during rehabilitation.** Ideas include improving clinical work flow, trauma patient screening and triage, personalized treatment plans for traumatic injury patients, patient monitoring, intelligent assistants for patients, virtual nursing support, the utilization of source ID tools for traumatic injury, regional trauma care management, better predictive analysis of traumatic injury, and cost-data economic assessments of traumatic injury care.

Injury Prevention

- **Research to evaluate best practices in traumatic injury prevention.** Ideas include addressing traffic safety, gun violence, fall prevention, mass casualty planning and preparation, and other areas where traumatic injury is significant, but preventable.
- **New approaches to educate the general public about traumatic injury prevention.** Ideas include raising awareness about distracted driving, gun safety, fall prevention, mass casualty planning and preparation, and other areas where traumatic injury is significant, but preventable.

Basic Science

- **Innovations or research projects in nanomedicine, materials, and biotech.** Ideas include advances in devices, drugs, or therapeutics that lead to more effective treatment and rehabilitation for traumatic injury. Areas could include, but are not limited to: regenerative medicine, synthetic biology, antimicrobial surfaces/coatings, precision drug delivery, sensors inside living systems, diagnostics, artificial bone/muscle/cartilage, new biological medical materials, improvements in medical diagnostics, tissue engineering, and wound healing monitors.



- **Innovations and research that utilize data analytics, artificial intelligence, and machine learning in the basic sciences and medical research.** Ideas include tissue regeneration including bone, muscle, joint and tendon that could lead to eventual drug development; therapeutics or medical device possibilities; imaging; the use of AI/ML to develop disease diagnostics, conduct medical image analysis, predict personalized health outcomes, inform clinical decision making, use AI/ML to expedite drug discovery, to aid in understanding traumatic injury physiologically, designing smart devices and tools that improve the treatment of traumatic injury.

U.S. Military Priorities

- **Development of novel treatment strategies to improve current diagnoses for compartment syndrome. Alternatives to intracompartmental pressure measurements are encouraged.**
- **Identification of best practices to address infection, rejection and/or failure of percutaneous osseointegrated prosthetic limbs.**
- **Development of survivability criteria and vital organ injury metrics for the whole body when exposed to extreme blast exposures**
- **A prototype that can stop life threatening bleeding in the abdominal intracavitary region of patients who are delayed in receiving definitive surgical care**
- **Drug candidates or device prototypes that assist in the diagnosis of traumatic brain injury (TBI).** Ideas include prototypes that can assess the degree of concussive damage and be used to assist in decision-making regarding whether to order patient evacuation or return to duty; be applied at the time of injury to reduce the severity and progression of TBI; or repair or restore function within a hospital setting.
- **Technologies that can provide prolonged field care to injured patients in an austere battlefield environment.** Ideas include diagnostics with new modalities or algorithms to assist in directed care for personnel; pharmacological-based stabilization approaches; telehealth technology for treating traumatic injury.
- **Development of cell therapies that reduce or eliminate the inflammatory complications that arise from hemorrhagic shock.**

About The Gillian Reny Stepping Strong Center for Trauma Innovation

Trauma is one of the most demanding and under-recognized global medical challenges in our nation. In the U.S. alone, traumatic injuries are the third leading cause of death across all age groups and the No.1 cause of death for Americans between 1 and 44 years of age. For those serving in the military, 82 percent of personnel return from battle with at least one wounded limb. Yet, despite these dire statistics, trauma care research receives less than one percent of funding from the National Institutes of Health.

The Gillian Reny Stepping Strong Center for Trauma Innovation was established in 2014 by the Reny and Epstein families following the 2013 Boston Marathon bombing tragedy to close this gap. Several



members of the Reny family were injured, but none more than Gillian Reny, who suffered life-threatening injuries. Based on their personal experience, and in gratitude for their lifesaving care at the Brigham, the Renys and Epsteins are devoted to advancing trauma research and recovery, which remains a neglected, underfunded medical discipline.

The Stepping Strong Center is now a major initiative with a global vision to change how we prevent and treat traumatic injury. Through its support for trauma research and recovery, the center aims to move the field beyond the current paradigm and toward a goal of transforming patient outcomes through innovative, multidisciplinary and multi-institutional collaborations.

Stepping Strong Center Program Areas

- The **Stepping Strong Center Innovator Awards**, the center's signature program, has proven to be the critical funding that physicians and research scientists have needed to launch, validate, or move forward their innovative ideas. To date, the Stepping Strong Center has provided \$3.8 million to 26 multidisciplinary, multi-institutional Innovator Award research teams. In just six years, researchers have leveraged their Stepping Strong Innovator Awards to secure nearly \$20 million in additional outside funding from more traditional sources including private philanthropy, corporations, and federal agencies. Today, the Stepping Strong Innovator Awards is an endowed program that addresses injury prevention, clinical solutions, and rehabilitation strategies to improve the lives of both civilian and military trauma patients.
- The **Stepping Strong Breakthrough Awards** support previous Innovator Award winners seeking additional funds to advance their research to the next level.
- The **Stepping Strong Research Scholars** are engaged in exploring topics to advance bone and skin regeneration in trauma patients
- The **Stepping Strong Plastic Surgery Trauma Fellowship** trains the next generation of plastic surgeons in advanced techniques for treating acute and complex traumatic injury.
- The **Stepping Strong Injury Prevention Program** collaborates directly with community organizations to raise awareness and prevent traumatic injury from occurring.

Our Team

The Stepping Strong Center consists of subject matter experts on staff, co-medical directors at Brigham and MGH, an External Advisory Board, Stepping Strong Center affiliated physician-scientists and faculty that collaborate with medical experts from world-class neighboring institutions including MGH, Massachusetts Institute of Technology, Beth Israel Deaconess Medical Center, Spaulding Rehabilitation Hospital, Boston Children's Hospital, Tufts Medical Center, the Harvard Stem Cell Institute, the Dartmouth-Hitchcock healthcare system, the Broad Institute of MIT and Harvard, and the Wyss Institute at Harvard.

The Stepping Strong Medical Executive Committee consists of leading physicians and researchers from 15 academic institutions.

Application Process

Applications will be evaluated and ranked for funding priority based on a review process at the Brigham that will evaluate clinical relevance, scientific merit, and fit with the mission of the Stepping Strong



Center. Please note that the selection process will involve the Center’s leadership team and may involve review by others, including, but not limited to, Harvard Medical School faculty (both clinicians/researchers), faculty at other institutions, donors, venture capitalists, representatives of the biopharma/device industry, and other friends of the Stepping Strong Center. The final selection will be made by the Stepping Strong Center leadership following input from the reviewers and a presentation session by the finalists to the selected reviewers.

Preferential assessment will be given to proposals that include collaborators based at Brigham and Women’s Hospital and/or Massachusetts General Hospital. Please contact the Stepping Strong Center directly at steppingstrong@bwh.harvard.edu if you would like assistance identifying potential collaborators at either hospital.

Note: If an applicant seeks to apply in an area that has not traditionally been funded by the Stepping Strong Center, please check first with the Stepping Strong Center leadership team via email at steppingstrong@bwh.harvard.edu with a short summary of your proposed project.

Timeline

Initial Selection Process	Dates
RFA Announcement	April 13, 2020
Full applications due	August 14, 2020
Finalists notified	September 11, 2020
Finalists’ presentations to selection committee	October 22, 2020 (TBD)
Award Recipient Announcement	November 19, 2020
Funding start date	January 1, 2021

Eligibility

- All healthcare professionals, including clinicians, academic researchers, nurses, allied health professionals, post-doctoral fellows, and medical students, along with private sector researchers and inventors, are invited to apply. Please contact the Stepping Strong Center at steppingstrong@bwh.harvard.edu if you have questions about your eligibility
- Research teams that have strong multi-disciplinary expertise will receive preference. Teams will ideally consist of researchers, a trauma clinician (if the Principal Investigator is not a clinician), external experts, and engineers knowledgeable in healthcare.
- Applicants may conduct research jointly with nonprofit research institutes, government labs (such as NIH), or private companies.
- Previous applicants of the Stepping Strong Innovator awards are eligible to re-apply, whether or not they have previously been granted a Stepping Strong Innovator Award.
- Individuals may serve as the Principal Investigator (PI) of only one proposal but may be co-PIs on multiple proposals per year.
- Recipient (or collaborator in the case of an external recipient) must remain at Brigham and Women’s Hospital or Massachusetts General Hospital for duration of the award; award may otherwise be forfeited.
- If a project is selected as a finalist, at least one member of the team must participate in the presentation session, which is tentatively scheduled on October 22, 2020 at the Brigham.



Review Criteria

- Projects must address a clinical problem related to injury prevention or trauma and will be evaluated for impact, clinical significance, or commercialization potential.
- The project must be scientifically meritorious, have clinical relevance, and be aligned with innovative research in areas related to traumatic injury and its associated recovery, including approaches to injury prevention, improving pre-hospital treatment of wounds, and advancing the treatment, care and healing of traumatic injuries in the areas stated above, and any other facets of trauma care that impact civilian and military trauma patients.
- The project will be reviewed for its connection to the Stepping Strong Center's mission and vision.
- Projects will be reviewed for the strength and multidisciplinary and/or multi-institutional nature of its team--including clinicians, medical researchers, and engineers; a willingness to work with new mentors and advisors; and investigators with the requisite skills and experience to carry out the project successfully.

Review Process

- Applications will be solicited per the timeline above. Following a review by a committee appointed by the Stepping Strong Center, finalists will be selected to participate in a presentation session with a committee composed of reviewers who are internal and/or external to the Brigham.
- Partners Innovation will assess finalist applications to review intellectual property prior to any release of their documents to the review committee.
- A portion of the review committee throughout the selection process will be composed of clinicians who treat trauma patients. Additional committee members will be recruited from other relevant departments, institutes, and external sources.
- The announcement of the Stepping Strong Innovator Award winners will occur on November 19, 2020.
- The funding start date will be January 1, 2021.

Responsibilities

- Recipients are obligated to provide quarterly updates to the Stepping Strong Center for Trauma Innovation.
- Grantees will notify the Stepping Strong Center when other grants are received related to this funding.
- Grantees will notify the Stepping Strong Center as well as the Brigham's Communications Department if they are contacted by media sources to talk about their work.
- Grantees will acknowledge The Gillian Reny Stepping Strong Center for Trauma Innovation in media appearances, publications, posters, other grants, and other professional recognition resulting from this funding support, when such events are due to occur.
- Recipients are expected to present at Stepping Strong Center events, meetings, symposia, and individual meetings with donors, as needed and appropriate.
- Stepping Strong Innovator Award winners will be eligible to apply for Stepping Strong Breakthrough Awards one year after their initial funding. See the [Stepping Strong website](#) for further information about this program.



Application Format

Full applications (**due August 14, 2020, 12:00 pm EST**) will be submitted by email to steppingstrong@bwh.harvard.edu and must include the following:

1. Overview (1 page) with:
 - a. Title of research project to be supported
 - b. Applicant's last and first names, employing institution, department, academic/professional title, email address, and telephone number
 - c. Scientific theme/field your proposal addresses
 - d. A compelling lay clinical impact summary (no more than 300 words)
 - e. A scientific abstract (no more than 300 words)
2. Proposal (five-page limit, excluding references), including:
 - a. Introduction
 - b. Specific aims
 - c. Background, significance, and preliminary data (if available) about patient impact and market size worldwide
 - d. Research approach (include experimental details, approximate timeline, and contributions of each team member)
 - e. Explanation of the extent to which your research may engender the most interest from the research community, in relation to the current gold standard clinical treatment available
 - f. Opportunities for research to have clinical significance, societal impact, or to be commercialized as a product, drug, or therapeutic
 - g. Future strategies for raising funding beyond the Stepping Strong Innovator Award
3. Biosketch of Principal Investigator, co-investigators, and significant key personnel using NIH format
4. Detailed budget for one year for a maximum of \$100,000. The Stepping Strong Center assumes that 15% will be allocated for indirect costs to Mass General Brigham.
5. Copy of current human or animal use protocol approval letter (if applicable).

By applying for the Stepping Strong Innovator Awards you agree to release and hold harmless BWH, the Gillian Reny Stepping Strong Center for Trauma Innovation and its subsidiaries, affiliates, societies, advertising and promotion agencies, partners, representatives, agents, successors, assigns, employees, officers and directors from any liability, illness, injury, death, loss, litigation, claim or damage that may occur, directly or indirectly, whether caused by negligence or not, from (i) such Applicant's participation in the Stepping Strong Innovator Award Competition and/or his/her acceptance, possession, use, or misuse of any award or any portion thereof, (ii) technical failures of any kind, including but not limited to the malfunctioning of any computer, cable, network, hardware or software; (iii) the unavailability or inaccessibility of any transmissions or telephone or Internet service; (iv) unauthorized human intervention in any part of the entry process or the promotion; (v) electronic or human error which may occur in the administration of the promotion or the processing of entries.

FOR ADDITIONAL INFORMATION OR TO ANSWER QUESTIONS, PLEASE CONTACT:

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