



2021 Stepping Strong Innovator Awards: Request for Applications

The Gillian Reny Stepping Strong Center for Trauma Innovation (the Stepping Strong Center) announces the **2021 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. The center places high value on multidisciplinary projects and multi-institutional collaborations.

The Stepping Strong Center expects to provide several Innovator Award grants of up to \$100,000 each in 2021 in the following areas:

- Injury prevention
- Basic science
- Clinical innovation
- Civilian-military translation
- Special Focus Topic: Care of blast-related injuries

Only those applications proposing research related to the continuum of trauma care – from prevention to treatment to recovery - will be reviewed. Specific areas of interest and project expectations are outlined in further detail in this document.

All Stepping Strong Innovator Award proposals must align with the mission of 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.

The “Application Process” section below details explicit instructions regarding proposal submission, timeline, eligibility, and review process. Applicants are also 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.

Areas of Focus

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 investigative spheres:

1) Injury Prevention

- **Innovation and research advancing efforts to prevent traumatic injury.** Ideas include implementation and evaluation of community- and hospital-based programs for primary and secondary prevention of traumatic injury. Preference will be given to interventions related to injury mechanisms prioritized by the Centers for Disease Control including: motor vehicle injury, interpersonal violence, opioid overdose, suicide, and older adults falls.

2) Basic Science

- **Innovation and research in nanomedicine, materials, and biotechnology.** 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.
- **Innovation and research that utilizes 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; the use AI/ML to expedite drug discovery, aid in understanding traumatic injury physiologically, and design smart devices and tools that improve the treatment of traumatic injury.

3) Clinical Innovation

- **Innovation and research that integrates 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.
- **Innovation and research that utilizes data analytics, artificial intelligence, and machine learning to improve the effectiveness and efficiency of the treatment and care of traumatic injury patients across the trauma care continuum.** Ideas include improving

clinical workflow, 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.

- **Innovation and research examining trauma systems development and other health care policies impacting outcomes for traumatic injury patients.** Ideas include optimization of triage protocols, examination of trauma center verification criteria, payment models to reduce risk of catastrophic health care expenditures, medical education and training policies, mass casualty planning/preparation, and system-level interventions designed to expand accessibility and effectiveness of trauma care.

4) Civilian Military Translation Priorities

- **Innovation and research that aligns with trauma-related programs within the Congressionally Directed Medical Research Program (CDMRP).** The CDMRP's mission is to "responsibly manage collaborative research that discovers, develops, and delivers healthcare solutions for Service Members, Veterans and the American public." Ideas include projects focusing on multiple-use scalable wound-care solutions that can address prevention of bleeding and infection, delivery of therapeutics, and promotion of healing spanning acute through chronic care; repair and/or restoration of combat-related genitourinary organ and tissue damage; enhanced delivery and utilization of telemedicine platforms; hemorrhage control and resuscitation; en route care; forward surgical and intensive critical care; neurotrauma and traumatic brain injury; and traumatic tissue injury.

5) Special Focus Topic: Care of Blast-Related Injuries

- **Innovation and research related to the treatment of injuries due to explosive devices.** Ideas include projects focusing on pulmonary barotrauma, tympanic membrane and middle ear injury, abdominal hemorrhage and perforation, and globe rupture/penetrating ocular injuries.

We ask that applicants who propose projects in an area related to trauma that has not traditionally been funded by the Stepping Strong Center to email a written inquiry with a brief summary of your proposed project to the Stepping Strong Center before proceeding with your application.

Project teams **must** include at least one collaborator with a primary affiliation at Mass General Brigham. Please contact the Stepping Strong Center directly at steppingstrong@bwh.harvard.edu if you would like assistance identifying potential collaborators.

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. Of the military casualties reported in Iraq and Afghanistan, 82% sustained extremity injuries and traumatic amputations comprise 2.3% of all

battle injuries and 7.4% of major limb injuries. 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.

Now a major initiative with a global vision to change how we prevent and treat traumatic injury, the Stepping Strong Center funds patient-centric, innovative projects with an emphasis on four focus areas:

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.

Through its support for the continuum of trauma care—from prevention to treatment and recovery—the center aims to move the field toward a goal of transforming patient outcomes through innovative, multidisciplinary and multi-institutional collaborations.

Our Team

The Stepping Strong Center consists of co-medical directors at Brigham and Mass General, two boards -- the Medical Executive Committee and Stepping Strong Advisory Board – faculty experts, program staff, and collaborators at institutions including Massachusetts Institute of Technology, Beth Israel Lahey Health, 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.

Application Process

Applications will be evaluated and ranked for funding priority based on a review process at the Brigham using pre-determined review criteria. 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.

Timeline

Initial Selection Process	Dates
RFA Announcement	April 12, 2021

Full applications due	July 23, 2021
Finalists notified	September 28, 2021
Finalists' presentations to selection committee	October 28, 2021 (TBD)
Award Recipient Announcement	November 18, 2021
Funding start date	January 1, 2022

Eligibility

- All healthcare professionals, including clinicians, academic researchers, nurses, allied health professionals, and post-doctoral fellows, 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.
- At least one collaborator must have their primary affiliation at Mass General Brigham.
- 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 been granted a Stepping Strong Innovator Award. Those who have received Innovator Awards can apply two years after receiving their previous award.
- Individuals may serve as the Principal Investigator (PI) of only one proposal but may be co-Is on multiple proposals per year.
- Recipient (or collaborator in the case of an external recipient) must remain in the Mass General Brigham system 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 28, 2021 at the Brigham.

Review Criteria

- Projects 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 (with at least one trauma clinician), medical researchers, and engineers; extent to which investigators possess 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 applications to review intellectual property prior to the release of any 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 18, 2021, during our annual Research and Innovation Symposium.
- The funding start date will be January 1, 2022.

Grantee Responsibilities

- Recipients are obligated to provide a 6-month progress report and a final project report to The Gillian Reny Stepping Strong Center for Trauma Innovation.
- Grantees will notify the Stepping Strong Center when additional grants are received which build on data and findings from the Innovator Award project.
- Grantees will report inventions, whether patentable or not, and software made with the support, in whole or in part, of Innovator Award Funding to the Stepping Strong Center within 60 days of the date when the invention or software is disclosed to the institution where the work was performed.
- Grantees will inform the Stepping Strong Center as well as the Brigham's Office of Strategic Communication of any media appearances or coverage of 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, grand rounds, 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 July 23, 2021, 12:00 pm EST**) will be submitted by email to steppingstrong@bwh.harvard.edu and must include the following:

1. Overview 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, including the problem or challenge you are trying to solve
 - 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 and accompanying budget justification 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. Please use the NIH detailed budget form (PH398).
 5. Copy of current human or animal use protocol approval letter (if applicable).

The text of the Overview and Proposal documents must be in Arial, 11-point font. Single spacing is allowed, with margins of at least 0.5 inches. Incomplete applications will not be considered.

- *By applying for the Stepping Strong Innovator Awards you agree to release and hold harmless Brigham and Women's Hospital, 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. Your application also means that you agree to the terms and conditions governing the Stepping Strong Innovator Awards, which includes the Innovator Awards policy regarding licensing of intellectual property and royalty sharing.*

FOR ADDITIONAL INFORMATION, PLEASE CONTACT:

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