

EMERGENCY MEDICINE FOUNDATION

LifeFlow® Resuscitation Research Grant Request for Proposal

Please read these instructions carefully. Applications that do not follow these instructions with regards to type size, length, format, and supporting documentation will be summarily rejected. No extension of the deadline will be granted.

Submit Letter of Intent at <https://emfoundation.aibs-scores.org>

Before submitting your application, please be sure that the following items have been addressed:

- Cover page is included as the first page of the application packet and is fully completed (sample attached).
- Type size is 11 pt. font, single-spaced and one-half (0.5 inch) margins
- Evidence of IRB approval, **or at least evidence of submission to IRB**, from each institution, is included in application packet (for multi-centered studies, approval from or evidence of submission to IRB/REB for all sites is required)
- Statement of Conditions is signed by **Principal Investigator** and **Institutional Official** and is included in application packet (see below).
- Letter of support from Emergency Medicine Chair is included in application appendix.
- Submission via the on-line application system is required. Late applications will not be considered.

EMERGENCY MEDICINE FOUNDATION

LifeFlow® Resuscitation Research Grant Request for Proposal

Letter of Intent Deadline November 20, 2020

Application Deadline	February 3, 2021 by 6:00 pm EST (by invitation only)
Notification of Award	April 1, 2021
Funding Period	May 1, 2021 – October 31, 2022
Funding Amount Available	One \$250,000 Grant
Eligibility	United States or Canada based institutions only
Questions	Contact Cynthia Singh at csingh@acep.org
Link to RFP	https://www.emfoundation.org/apply
Letter of Intent Submission	https://emfoundation.aibs-scores.org

LIFEFLOW RESUSCITATION RESEARCH GRANT

This funding opportunity will support research examining earlier resuscitation of patients presenting in shock using the LifeFlow device, a simple hand-held tool for rapid delivery of fluids or blood products. LifeFlow was developed by 410 Medical and received FDA clearance for crystalloid administration in 2016, with subsequent clearance for blood and blood products in May 2020. Many hospitals and EMS agencies across the U.S. have adopted this device for the initial management of a wide variety of conditions including septic shock, anaphylaxis, post-ROSC hypotension, trauma, and obstetric or gastrointestinal hemorrhage. Based on existing evidence and the current clinical experience with LifeFlow, we seek further data to evaluate whether earlier reversal of hypotension and shock using the LifeFlow device results in improved patient outcomes, lower volumes of fluid and/or blood infused, and reduced healthcare costs. The research plan proposed by the applicant must be related to 410 Medical's stated areas of research interest outlined below. The LifeFlow Resuscitation Research Grant award will fund prospective clinical research studies (including quasi-experimental designs) not to exceed \$250,000 over 18 months. *

** LifeFlow devices (and training of study staff) will be provided in-kind by 410 Medical.*

SPECIFIC AREAS OF RESEARCH INTEREST

EMF invites mid-career or established investigator-initiated human subjects research proposals that address 410 Medical's research mission. General areas of research interest include, but are not limited to:

- Controlled studies in the emergency department or prehospital setting that determine the relative effectiveness of LifeFlow in improving clinical outcomes of adult or pediatric hypotension / shock (e.g., sepsis, dehydration, post-ROSC, trauma, hemorrhage **, etc.).
- Comparative-effectiveness studies in the emergency department or prehospital setting that evaluate LifeFlow vs. traditional methods (e.g., pressure bag, push-pull) for fluid resuscitation in adults and pediatrics.
- Controlled studies in the emergency department or prehospital setting that evaluate the timing, nature and comparative effects of early fluid delivery with LifeFlow on the hypotensive patient's hospital course.

Proposals should address 1-2 well developed specific aims. Studies should not be designed to exclude women, minorities, and individuals based on age unless there is a scientific or ethical reason not to include them.

***While the main area of interest is fluid resuscitation, strong applicants wishing to pursue studies to evaluate the relative effectiveness of LifeFlow for Blood in hemorrhagic shock (trauma or non-trauma) will be considered.*

LETTERS OF INTENT PROCEDURES AND DEADLINE

Due to the variety and complexity of potential research proposals, EMF has instituted a two-phase application procedure. **Those interested in seeking funding are required to first submit a Letter of Intent.** These brief, one-page proposals are reviewed by the ACEP Scientific Review Subcommittee (SRS) and the highest scoring letters will be invited to submit full grant proposals.

Letter of Intent Due Date: November 20, 2020

Letter of Intent Submission: <https://emfoundation.aibs-scores.org>

Letter of Intent Requirements (one page)

- Principal Investigator
- Institution
- Project Title
- Project Summary Abstract
- Estimated Budget
- Attachment: Principal Investigator Biosketch

ELIGIBLE APPLICANTS

Eligible applicants for the LifeFlow Resuscitation Research Grant are academic or community-based **mid-career or established investigators and institutions** within US and Canada with a demonstrated record of ongoing clinical research and publication in the proposed study area. This grant mechanism allows an investigator to define the scientific focus or objective of the research based on a particular area of interest and competence.

INSTITUTIONAL SUPPORT

The applicant is required to demonstrate that the project will be successfully completed at their institution(s). **Research must be approved by the institutional review board (IRB) or its equivalent, and a copy of the approval or pending approval sent with this application. IRB approval must be documented prior to dispensation of EMF funds.** The applicant must also submit a letter from the Chair/Director of Emergency Medicine stating that adequate funds and time will be available to the applicant to complete the proposed project.

EVALUATION OF APPLICATIONS

Each application will be reviewed by emergency medicine specialists who are actively involved in clinical research. Each application will be judged primarily on: (1) the significance of the project to emergency medicine, (2) the soundness of the research methodology, (3) the feasibility of execution and completion of the project, (4) innovation, (5) applicant experience, and (6) research environment. The final funding decision will be made by the Emergency Medicine Foundation Board of Trustees and all decisions are final. There is no guarantee of award and EMF may elect to award any, or no, grant in its sole discretion based on its evaluation of the applications.

APPLICANT COSTS

Costs for developing proposals are entirely the responsibility of the applicant and are not chargeable in any manner to EMF.

TERMS OF THE AWARD

A portion of the EMF grant funds will be disbursed at the start grant award and subsequent payments will be made contingent upon satisfactory progress reports.

Limitations on Awards

Funds may be used for materials and supplies and to provide salary support. Capital equipment expenditures (costing more than \$5,000 and a life of over one year) must be justified in the budget. Payments will be made to the principal investigator's institution that will be responsible for administering the funds. The Emergency Medicine Foundation will not be responsible for institutional overhead, cost for publications, travel, renovations, or secretarial support. Detailed audited financial reports may be required. The EMF and/or 410 Medical are not fiscally responsible for funds necessary for the project's completion.

Change of Status of Principal Investigator

If the principal investigator changes affiliations or ceases research in the field for which the award was made, the award will terminate, and the remaining balance will be returned to the Emergency Medicine Foundation.

Liability of the Emergency Medicine Foundation and 410 Medical

The EMF and/or 410 Medical assumes no financial liability if patient care responsibilities of any kind are undertaken by the program faculty or investigator. The principal investigator and his or her institution acknowledge that the EMF and/or 410 Medical are not legally liable for the conduct of the institution, the principal investigator, the program faculty, or any associate investigators.

Non-Inducement

The parties acknowledge and agree that nothing in this RFP nor any resulting grant is intended to be nor shall it be construed as, an offer or payment made, whether directly or indirectly, to induce the referral of patients, the purchase, lease or order of any item or service from 410 Medical, or the recommending or arranging for the purchase, lease or order of any item or service from 410 Medical. This RFP and the any grant issued pursuant to it do not obligate EMF, 410 Medical or Applicant to make referrals to or purchases from the other(s).

Patent Policy

The principal investigator and institution acknowledge that, though unlikely, if a patentable invention or discovery is conceived, or conceived and reduced to practice by EMF-supported personnel during the award year, the EMF must be apprised of the invention and the institution's plans for protecting such invention under existing institutional patent policy. The EMF will defer to institutional policies when they are in compliance with those of the Federal government. The EMF reserves the right where the organization has no patent policy, or policies not in compliance with those of the federal government, to claim rights and interests in the invention or discovery.

SUPPORT FACILITIES

The applicant must submit letters of support if the proposed project uses facilities not routinely available to or directly under the supervision of the sponsoring program. Multi-centered studies must submit letters of support from each study site.

PUBLICATIONS

All discoveries resulting from work supported in part by the Foundation should be made available to the public and scientific community through scientific and/or public policy channels such as national meetings and peer-reviewed publications. Publications will acknowledge the support of the Emergency Medicine Foundation. An electronic reprint and a hard copy reprint of each publication should be forwarded to the Emergency Medicine Foundation.

PROGRESS REPORTS AND MONEY MANAGEMENT

The principal investigator will submit quarterly progress reports and a final progress report within thirty days of the conclusion of the research project. Additional reports may be required. Failure to provide the reports will delay transmission of funds. Furthermore, failure to provide interim and final reports to the Foundation may negatively impact your institution's ability to apply for future EMF awards. EMF will maintain the copyright of all such reports. Progress reports must include an accounting report using Generally Accepted Accounting Procedures showing the distribution of funds with a signature from an institutional official (e.g., accountant, grants manager, administrator from the Office of Sponsored Research). The EMF reserves the right to withhold release of interim funds if >25% of the previous cycle remains unspent. The EMF allows up to 25% of funds to be carried over one cycle to the next.

SURVEYS

The principal investigator and the institution will be surveyed periodically following completion of the award regarding career paths, subsequent grants/contracts obtained, and publications. The principal investigator and the institution will be expected to respond to these surveys because the Foundation will rely on such information to support continuation of the award program.

ABSTRACT PRESENTATION – ACEP RESEARCH FORUM

Awardees are required to present their research findings at the American College of Emergency Physicians (ACEP) Scientific Assembly/Research Forum. Funds cannot be requested to cover the travel cost to attend the Research Forum.

CONTACT INFORMATION

Please address questions to Cynthia Singh, MS, Deputy Executive Director at csingh@acep.org.

APPLICATION INSTRUCTIONS (By Invitation Only Following the LOI Stage)

Do **not** submit an incomplete application. **An application will be considered incomplete if it is illegible, if it fails to follow instructions, or if the material presented is insufficient to permit an adequate review.** Unless specifically required by these instructions (e.g. human subjects' certification) do **not** send supplementary material.

The application consists of the following sections:

1. COVER PAGE

Name the **one** person responsible to the applicant organization for the scientific and technical direction of the project. Choose a title that is descriptive and specifically appropriate, rather than general. List any associate investigators or consultants. (see Cover Page template below)

2. PROJECT SUMMARY ABSTRACT (limit 1 page)

The purpose of the project summary abstract is to describe succinctly every aspect of the proposed project. It should contain a statement of rationale, objectives, methods to be employed, innovation and significance. For methods, include hypothesis, specific aims, study design, study population, setting, intervention(s), outcome measures and data analysis. Indicate how the project relates to the above noted specific areas of research interest. Describe concisely the research design and methods for achieving these goals. Avoid summaries of past accomplishments and use of the first person. This abstract should be a succinct and accurate description, in layman's terms, of the proposed work. All content of the abstract – including investigators, roles, and abstract body – should not exceed one page.

3. TABLE OF CONTENTS

4. SPECIFIC AIMS (limit 1 page)

State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved.

List the broad, long term objectives and the goal of the specific research proposed (e.g. to test a stated hypothesis, solve a specific problem, challenge an existing paradigm or clinical practice, or address a critical barrier).

5. RESEARCH STRATEGY (limit 6 pages)

Please use the following subheadings:

Significance

- Explain the impact of the condition on the health of individuals and populations
- Explain the potential for the study to improve healthcare and outcomes
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

Innovation

- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

Approach

- Describe overall strategy, methodology, and analyses to be used to accomplish specific aims of project. Include the following subsections: study design, population, setting, intervention(s), data sources, outcome measures, and statistical design and power.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high-risk aspects of the proposed work.
- Preliminary Studies. Include information on any preliminary studies. Discuss the PI's preliminary studies, data, and or experience pertinent to this application. Preliminary data can be an essential part of a research grant application and help to establish the likelihood of success of the proposed project.

6. **STUDY TIMELINE** (limit 1 page)

Provide a description or diagram describing the study organization and timeline. The timeline should be general (e.g., "3 months after notice of award"), and should not include specific dates.

7. **KNOWLEDGE TRANSFER** (limit 1 page)

State the specific goals for dissemination and knowledge transfer and the expected impact of the activities to advance the translation of research results into knowledge, products, and procedures that improve human health.

8. **ROLE OF PARTICIPANTS** (limit 1 page)

List the principal investigator, co-investigator, consultants and others involved in the research. Include a brief description of how and to what extent each will be involved in the proposed project.

9. **BIOGRAPHICAL SKETCHES**

Use the NIH Biographical Sketch Format Page available on the internet at <https://grants.nih.gov/grants/forms/biosketch.htm> Information is requested for the applicant and any associate investigators or consultants who will be involved with the project. Biosketches should include all four sections: A. Personal Statement; B. Positions and honors; C. Contribution to Science; D. Research support. Each biosketch should not exceed five pages.

10. **RESOURCES AND ENVIRONMENT**

Demonstrate that the resources are in place to conduct the proposed work. List the facilities to be used and their capacities, pertinent capabilities, relative proximity and extent of availability. List also the major equipment items already available, including the location and present pertinent capabilities of each. If your proposal seeks funding for new equipment, provide evidence of institutional support with respect to providing new space to accommodate the equipment.

11. **BUDGET**

Use the NIH Form Detailed Budget for Entire Proposed Project Period available at www.grants.nih.gov/grants/funding/phs398/phs398.html# Indicate how the money will be spent. Justify all major expenditures. Use the current NIH salary cap. ***Institutional overhead is not allowed.***

The LifeFlow Resuscitation Grant will award one traditional research project (not to exceed

\$250,000 in direct costs over 18 months). Institutional overhead costs (“indirects”) are not allowable. The budget should list names and roles of all personnel to be involved in the project during the 18-month period. In cases where individual study personnel cannot be identified at the time of submission it is acceptable to provide the proposed position title and role. The budget should indicate whether the appointment of an individual is full time or part time for each individual and the percentage of that appointment to be devoted to the research program. A minimum of 5% level of effort is recommended for all key personnel. When key personnel (particularly the PI) are listed for less than 5%, the budget justification should clearly explain how the proposed effort will be sufficient to execute the study, or identify any additional sources of funding/justification for low effort.

Funds may be used to support investigators, technicians, research assistants, students, and fellows. Fringe benefit costs for these personnel may be included. If graduate student support is included indicate the amount of tuition and amount of stipend separately. If equipment is purchased, each item of equipment must be listed if it has a unit acquisition cost of \$500 or more. Please give justification for travel costs, significant items of equipment, and any unusual costs. Indicate the estimated number of LifeFlow devices* that will be required to conduct the study and include as a line item and specify “in-kind” in the description. Travel costs should not exceed \$1,200 in any year and is limited to domestic travel. Do not include secretarial, telephone or other administrative costs. Budgeted salary support should not exceed National Institutes of Health (NIH) salary caps for the year in which the application is submitted. For 2020 proposals, salaries for faculty on 12-month appointments should not exceed \$197,300 (9-month appointment salaries should not exceed \$147,975).

** LifeFlow devices and training of study staff will be provided in-kind by 410 Medical (nb: current unit cost for individual LifeFlow devices is approximately \$250).*

12. BUDGET JUSTIFICATION

Provide a budget justification to include justification for personnel, consultants, equipment, supplies, travel, participant/trainee support, and other direct cost categories.

13. ETHICS

Human subjects. For all research involving human subjects, a part of the peer review process will include careful consideration of protections from research risks, as well as the appropriate inclusion of women, minorities, and children. The EMF Scientific Review Committee (SRC) will assess the adequacy of safeguards of the rights and welfare of research participants, and the appropriate inclusion of women, minorities, and children, based on the information in the application. This evaluation will be factored into the overall score. The information on the protection of human subjects that you are required to provide in this section is identical to information that you will be required to provide for the Institutional Review Board (IRB) or Research Ethics Board (REB) at your own institution and is required by most Federal agencies. This section must address the following items. These can be copied from your IRB/REB applications and pasted directly into this application.

The applicant should include specific measures on how protected health information (as defined by the U.S. Department of Health and Human Services and/or Health Canada) will be handled in accordance with the Privacy Rule of the Health Insurance Portability Accountability Act (HIPAA) or if applicable, Health Canada’s Personal Information Protection and Electronic Documents Act (PIPEDA).

Applicants from Canada proposing a study at a Canadian institution should include proof of submission of the application for Investigational Testing Authorization (ITA) for the LifeFlow device (deemed Class II). Upon request, EMF will provide any manufacturer information needed for applicants to complete the ITA form.

1. RISKS TO THE SUBJECTS

a. Human Subjects Involvement and Characteristics

Describe the proposed involvement of human subjects in the work outlined in the Research Design and Methods section. Describe the characteristics of the subject population, including their anticipated number, age range, and health status. Identify the criteria for inclusion or exclusion of any subpopulation. Explain the rationale for the involvement of special classes of subjects, such as fetuses, neonates, pregnant women, children, prisoners, institutionalized individuals, or others who may be considered vulnerable populations. Note that 'prisoners' includes all subjects involuntarily incarcerated (for example, in detention centers) as well as subjects who become incarcerated after the study begins.

List any collaborating sites where human subjects research will be performed and describe the role of those sites in performing the proposed research.

b. Sources of Materials

Describe the research material obtained from living human subjects in the form of specimens, records, or data.

Describe any data that will be recorded on the human subjects involved in the project. Describe the linkages to subjects and indicate who will have access to subject identities. Provide information about how the specimens, records, or data are collected and whether material or data will be collected specifically for your proposed research project.

c. Potential Risks

Describe the potential risks to subjects (physical, psychological, social, legal, or other), and assess their likelihood and seriousness to the subjects.

Where appropriate, describe alternative treatments and procedures, including the risks and benefits of the alternative treatments and procedures to participants in the proposed research.

2. ADEQUACY OF PROTECTION AGAINST RISKS

a. Recruitment and Informed Consent

Describe plans for the recruitment of subjects (where appropriate) and the process for obtaining informed consent. If the proposed studies will include children, describe the process for meeting requirements for parental permission and child assent.

Include a description of the circumstances under which consent will be sought and obtained, who will seek it, the nature of the information to be provided to prospective subjects, and

the method of documenting consent. Informed consent document(s) need not be submitted to the U.S. Public Health Service (PHS) agencies unless requested.

b. Protection Against Risk

Describe planned procedures for protecting against or minimizing potential risks, including risks to confidentiality, and assess their likely effectiveness. Where appropriate, discuss plans for ensuring necessary medical or professional intervention in the event of adverse effects to the subjects. Studies that involve clinical trials (biomedical and behavioral intervention studies) must include a description of the plan for data and safety monitoring of the research and adverse event reporting to ensure the safety of subjects.

3. POTENTIAL BENEFITS OF THE PROPOSED RESEARCH TO THE SUBJECTS AND OTHERS

Discuss the potential benefits of the research to the subjects and others. Discuss why the risks to subjects are reasonable in relation to the anticipated benefits to subjects and others.

4. IMPORTANCE OF THE KNOWLEDGE TO BE GAINED

Discuss the importance of the knowledge gained or to be gained as a result of the proposed research. Discuss why the risks to subjects are reasonable in relation to the importance of the knowledge that reasonably may be expected to result.

5. DATA AND SAFETY MONITORING PLAN (if applicable)

If your research includes a clinical trial, create a heading entitled "Data and Safety Monitoring Plan." Provide a general description of a monitoring plan that you plan to establish as the overall framework for data and safety monitoring.

14. INTELLECTUAL PROPERTY

State whether or not you expect the project to result in the development of anything deemed patentable. EMF is committed to transparency in its research grant program, and evaluates all actual, potential, or perceived conflicts of interest. A Disclosure Statement of financial interests must be completed and submitted for all key personnel.

15. LITERATURE CITED

16. APPENDIX

Copies of publications (not to exceed three) pertinent to the proposed research by the principal investigator may be included. They must be published or in press. Letters of support and copies of questionnaires and relevant testing forms should also be included as appendices. Appendices should not be used to circumvent the page limits specified above. Reviewers are not obligated to read the appendices. Include proof of IRB/REB approval or submission. No page numbering is necessary for Appendix.

17. SIGNED STATEMENT OF CONDITIONS (see form below)

Principal Investigator (*Last, first, middle*): _____

APPLICATION CHECKLIST

- _____ Cover Page
- _____ Abstract
- _____ Table of Contents
- _____ Specific Aims
- _____ Research Strategy
- _____ Study Timeline
- _____ Knowledge Transfer
- _____ Role of Participants
- _____ Biographical Sketch
- _____ Resources and Environment
- _____ Detailed Budget
- _____ Budget Justification
- _____ Ethics
- _____ Literature Cited
- _____ Appendix
- _____ Signed Statement of Conditions

LifeFlow® Resuscitation Research Grant
RESEARCH GRANT APPLICATION - COVER PAGE

Title of Research Project:

Exact Corporate Name of Institution:

Principal Investigator:
(include address, phone, FAX, and e-mail)

Official authorized to sign for institution:
(include address, phone, FAX, and e-mail)

Signature: _____

Signature: _____

Date: _____

Date: _____

Payee on check front:
TAX ID #

Official to whom checks are to be sent:

Fiscal officer responsible for disbursement reports:
(include address, phone, FAX, and e-mail)

Amount Requested (not more than 18 months):

Total funds: \$ _____ for ____ months

1st year: \$ _____

2nd year: \$ _____

Sign and submit with application

**STATEMENT OF CONDITIONS GOVERNING
THE EMERGENCY MEDICINE FOUNDATION GRANT**

It is understood that any Emergency Medicine Foundation Research Grant approved by the Emergency Medicine Foundation will be made with the following conditions:

1. Institutional overhead is not allowed.
2. The principal investigator's institution is organized for humanitarian purposes and is not a profit-making organization.
3. All reports of work achieved with this grant will acknowledge the support of the Emergency Medicine Foundation and any co-sponsors.
4. Any discovery that arises from work supported by the Emergency Medicine Foundation will be submitted for publication. An electronic reprint and hard copy reprint of each publication will be forwarded to the Emergency Medicine Foundation.
5. Independent progress reports by the applicant will be submitted to the Emergency Medicine Foundation quarterly, and within thirty days of completion of the funding period. Additional reports may be required. The Emergency Medicine Foundation will maintain the copyright of all such reports.
6. Grantees must submit the abstract of the funded project to the ACEP Research Forum at the end of the project (October 2022). Research Forum is held each year during the American College of Emergency Physicians Scientific Assembly. Grant funds may not be used for travel to this meeting.
7. If the named principal investigator leaves the institution or terminates research in the designated field, all remaining funds revert to the Emergency Medicine Foundation. If unused funds exist at the completion of the project, all remaining funds revert to the Emergency Medicine Foundation.
8. Patent rights will conform to institutional standards. If none exist, the Emergency Medicine Foundation reserves the right to protect such interests.
9. No research proposal will be funded unless the Principal Investigator and the Institutional Official of the sponsoring institution affirm:
 - a. That the investigation(s) proposed in this application is endorsed by the Human Subjects Committee or other designated body of the preceptor's institution, and
 - b. That any research involving human subjects conforms with the principles of the Helsinki Code of the World Medical Association, and
 - c. Research involving human subjects must be approved by the institutional review board (IRB), or its equivalent, and a copy of the approval or pending approval sent with this application. IRB approval must be documented prior to dispensation of Emergency Medicine Foundation funds.
 - d. That research involving a Canadian institution must have approval by Health Canada for Investigational Testing Authorization (ITA) for the LifeFlow device and a copy of the ITA approval or pending approval sent with this application. ITA approval must be documented prior to dispensation of Emergency Medicine Foundation funds.

Date Signature of Principal Investigator

Date Type Name of Principal Investigator

Date Signature of Institutional Official

Date Type Name of Institutional Official

Sign and submit with application