

# National Institutes of Health Support for Clinical Emergency Care Research, 2011 to 2014



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**Study objective:** I report on the results of a portfolio analysis of National Institutes of Health (NIH) support for clinical emergency care research.

**Methods:** A targeted query was created with data-mining techniques that accessed the NIH database for 2011 to 2014. The search was constructed to have a clinical focus; animal and bench research projects, as well as career development grants, were excluded. The search results were manually reviewed for appropriateness and then analyzed.

**Results:** Six-hundred eighty-eight applications were analyzed. During the study period, the number of new emergency care projects submitted to NIH increased from 62 in 2011 to 153 in 2014. A total of 112 new applications were funded for \$100 million, with an overall success rate of 23%. The total amount of support for both new and existing projects during the 4-year study period was \$263 million. One third of the funded principal investigators were emergency medicine faculty, and their success rate for R01 funding was twice the NIH average.

**Conclusion:** Emergency care research makes up 0.7% of NIH spending on new research project grants. The success rate is high for emergency medicine principal investigators conducting clinical work. The overall success rate for emergency medicine R01s is similar to that of other clinical specialties. [Ann Emerg Med. 2016;68:164-171.]

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### INTRODUCTION

In 2012, the National Institutes of Health (NIH) created the Office of Emergency Care Research. Among the first activities of this new office was an analysis of NIH spending on emergency care research. The goal of such an analysis was to provide a baseline of current spending on emergency care research and inform future discussions within NIH about emergency care research funding priorities. The only previous analysis of the NIH emergency care portfolio was performed in 2008 on data from fiscal year 2007 by what was then known as the Office of Portfolio Analysis and Strategic Initiatives. That analysis revealed 151 research projects with a total investment for fiscal year 2007 and future committed funds of \$312 million. This analysis included a number of studies that fell outside of clinical emergency care, and its findings were not published. Because no further analyses of emergency care research at NIH has taken place, a new analysis was undertaken, examining the 4 most recent years

of complete data, from 2011 to 2014. The goals were to provide an analysis of NIH support for clinical emergency care research and a more specific analysis of support to departments of emergency medicine.

### MATERIALS AND METHODS

#### Study Design

To provide consistent and transparent information to the public about NIH-funded research, NIH uses the Research, Condition, and Disease Categorization system. This system uses text-mining techniques to match projects to defined categories. There are currently 237 official research and disease categories that NIH reports; emergency care is not one of these. However, NIH staff may create their own categories to determine support for a disease or condition that is not already officially reported. To produce the current portfolio analysis, it was necessary to create a new category of emergency care research. This category was then used to mine the NIH inventory of submitted and funded projects that is kept on another NIH database called Information for Management

### Editor's Capsule Summary

#### *What is already known on this topic*

Advancing research is a priority of the academic emergency care community, and the National Institutes of Health (NIH) is the largest and most academically prestigious funder of clinical research.

#### *What question this study addressed*

What proportion of the NIH research portfolio is spent on clinical emergency care research, and how does funding for emergency care researchers compare with that for others?

#### *What this study adds to our knowledge*

Less than 1% of the NIH budget is spent on emergency care research. Emergency physicians have a higher rate of funding success for large clinical research grants but lower overall success rate for large research grant (R01s) compared with peers.

Planning, Analysis and Coordination, version II. This database contains information on every project submitted to NIH for funding consideration.

The category was constructed to have a clinical focus. It includes human subjects research that affects patients in the out-of-hospital setting and emergency department (ED), as well as conditions whose treatment benefits depend on the initiation of treatment in the ED. Included in this is the clinical evaluation of devices or diagnostic tests that affect ED or out-of-hospital patients and research on conditions or on populations that, although not time critical, are best suited to be studied in the emergency care setting because of specific patient characteristics. The category excludes human subjects research on treatments for diseases, disorders, or injuries that are best initiated outside of the out-of-hospital or ED setting. It also excludes studies in laboratory animals, cells, or cultures, even if relevant to emergency care, as well as the development of devices or assays that are not being tested on patients.

The category was created by first identifying a small number of projects that were good examples of clinical emergency care research. For each of these projects, the weighted Research, Condition, and Disease Categorization terms, of which there are more than 180,000 in the current categorization's thesaurus, were obtained. A relative importance (or weight) was then added to each term, and a threshold for the minimum number of terms was set. The weights were increased or decreased to ensure that a maximum number of

**Table 1.** Terms and weights used for the emergency care category.

Term	Weight
Air ambulances	100
Emergency care information systems	100
Emergency health services	100
Emergency helicopters	100
EMS communication systems	100
Emergency medical technicians	100
Emergency medicine	100
Emergency nursing	100
Emergency treatment	100
Emergicenter	100
Mobile emergency units	100
Neurologic emergencies	100
Out-of-hospital emergency care	100
Psychiatric emergency services	100
Transportation of patients	100
EMS	90
Childhood stroke	85
Accident and ED	75
Urgent care	60
Emergency care	45
Cardiopulmonary resuscitation	40
Poison control centers	40
Trauma centers	40
Paramedical personnel	35
Public health emergency	35
Trauma care	35
Acute coronary syndrome	30
Childhood injury	30
Intubation	30
Trauma units	30
Triage	30
Acute stroke	25
Ischemic stroke	25
Lung injury, acute	25
Acute pain	20
Ambulances	20
Electric countershock	20
Pediatric trauma	20
Syncope	20
Alteplase	15
ICUs	15
Natural hypothermia	15
Chest pain	10
Emergency service/first responder	10
Emergency situation	10
Health care reform	10
Lower respiratory tract infection	10
Neurologic status	10
Reperfusion injury	10
Reperfusion therapy	10
Resuscitation	10
Thrombolytic therapy	10
Unstable angina	10
Animal model	-70
Molecular	-100

EMS, Emergency medical services; ED, emergency department; ICU, intensive care unit.

appropriate projects were included and that a maximum number of inappropriate projects were excluded. These terms were then combined and used as a basis for the

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