



Published in final edited form as:

Acad Emerg Med. 2016 June ; 23(6): 740–743. doi:10.1111/acem.12926.

Emergency Medicine Resources within the Clinical Translational Science Institutes: A Cross-Sectional Study

William J. Meurer, MD, MS^{1,2,3}, James Quinn, MD, MS⁴, Christopher Lindsell, PhD⁵, Sandra Schneider, MD⁶, and Craig D. Newgard, MD, MPH⁷

William J. Meurer: wmeurer@med.umich.edu; James Quinn: quinnj@stanford.edu; Christopher Lindsell: christopher.lindsell@uc.edu; Sandra Schneider: sschneide3@NSHS.edu; Craig D. Newgard: newgardc@ohsu.edu

¹Department of Emergency Medicine, University of Michigan, Ann Arbor, MI

²Department of Neurology, University of Michigan, Ann Arbor, MI

³Stroke Program, University of Michigan, Ann Arbor, MI

⁴Department of Emergency Medicine, Stanford University, Palo Alto, CA

⁵Department of Emergency Medicine, University of Cincinnati, Cincinnati, OH

⁶Department of Emergency Medicine, Hofstra University

⁷Center for Policy and Research in Emergency Medicine; Department of Emergency Medicine; Oregon Health & Science University; Portland, Oregon

Abstract

Background—The Clinical and Translational Science Award (CTSA) program aims to strengthen and support translational research by accelerating the process of translating laboratory discoveries into treatments for patients, training a new generation of clinical and translational researchers, and engaging communities in clinical research efforts. Yet, little is known about how emergency care researchers have interacted with and utilized the resources of academic institutions with CTSA.

Objective—The purpose of this survey was to describe how emergency care researchers use local CTSA resources, to ascertain what proportion of CTSA consortium members have active emergency care research programs, and to solicit participation in a national CTSA-associated emergency care translational research network.

Methods—Survey of all emergency departments affiliated with a CTSA.

Results—Of the 65 CTSA consortium members, three had no emergency care research program and we obtained responses from 46 of the remaining 62 (74% response rate). The interactions with and resources used by emergency care researchers varied widely. Methodology and biostatistics support was most frequently accessed (77%), followed closely by education and training programs (60%). Several emergency care research programs (76%) had submitted for funding through

Corresponding Author Contact Information: William J. Meurer, MD, MS, Taubman Center B1-354 1500 E. Medical Center Drive, Ann Arbor, Michigan 48109-5303, Fax: 734-936-9414; wmeurer@umich.edu.

WJM and JQ conceived of the design, interpreted the data, performed statistical analysis and drafted the manuscript. All authors interpreted the data and provided critical revision of the manuscript for important intellectual content

CTSAs, with 71% receiving awards. Most CTSA consortium members had an active emergency care research infrastructure: 21 (46%) had 24/7 availability to recruit and screen for research, 21 (46%) had less than 24/7 research recruitment. A number of emergency care research programs participated in NIH research networks with the Neurological Emergencies Treatment Trials network most highly represented with 23 (59%) sites. Most emergency care research programs (96%) were interested in participating in a CTSA-based emergency care translational research network.

Conclusions—Despite little initial involvement in development of the CTSA program, there has been moderate interaction between CTSAs and emergency care. There is considerable interest in participating in a CTSA consortium based emergency care translational research network.

Introduction

With the support of the National Institutes of Health (NIH), the Clinical and Translational Science Award (CTSA) program was launched in 2006 and has expanded to over 60 academic medical institutions across the country.^{1,2} CTSA consortium members work to transform the local, regional, and national environment to “improve the efficiency, quality and impact of the process for turning observations in the laboratory, clinic and community into interventions that improve the health of individuals and the public.”³ These aims are closely aligned with those of emergency care research (ECR).^{4,5}

The CTSA consortium offers a tremendous resource for emergency care researchers and trainees,⁶ while also serving as an opportunity to promote emergency care partnerships in translational science.⁷ The CTSA program was not initially structured to consider the unique requirements of emergency care research; participant clinical interactions were patterned after the General Clinical Research Centers that largely pre-dated the emergency medicine establishment at many academic centers.⁸ Emergency departments (EDs) provide a compelling location to conduct translational research as they are visited by every cross-section of society for a vast array of medical (and social) needs. Despite potential for synergy, whether and how emergency care researchers have utilized CTSA resources is unknown. We note, for example, that 43% of awardees of CTSA-based career development grants had a primary academic department of internal medicine, while only 3% were from EM.⁹ In addition to understanding the existing interface between emergency care researchers and the CTSA consortium, it is unclear whether there is an appetite for a CTSA-affiliated emergency care research network. Now that the CTSA program is targeting multi-site translational research, assessing the potential for developing such a network is timely. Developing an understanding of the existing interactions between emergency care research and the desire for building further interactions locally and nationally will broadly inform emergency care research strategy. As such, our objective was to inventory emergency care research capacity across the CTSA consortium and to characterize the history of collaboration and engagement with the CTSA program. We conceived of this resource and collaboration inventory to facilitate creation of an inter-CTSA ECR network.

Methods

Study Design

We conducted a national, cross-sectional survey to characterize the involvement of emergency care research programs with the CTSA consortium, and to cursorily inventory emergency care research activity at the 65 institutions comprising the National Institutes of Health CTSA network in 2012. We held in-person meetings of interested researchers at the annual meeting of the Society for Academic Emergency Medicine, along with follow up conference calls to develop a questionnaire that would obtain data within pre-specified domains. The first domain was whether or not the emergency care research program had personnel available to conduct clinical research. The second domain was utilization of local CTSA resources. The third domain was academic collaboration and engagement between emergency medicine and the local CTSA. The final domain was whether the site would have interest participating in a CTSA-based emergency care translational research network. The questionnaire was initially tested at three institutions. Each of the pilot sites contributed feedback to improve the clarity and content of the survey items, and all investigators agreed on the final version. The final questionnaire is available in the supplementary material. This survey was determined not to be human subject's research by the Stanford University Institutional Review Board.

Setting and Participants

We obtained a list of current CTSA sites from ctsaweb.org in summer 2012. This list was cross-referenced with the Society for Academic Emergency Medicine (SAEM) residency catalog to identify academic emergency medicine sites affiliated with current CTSA sites, and to identify emergency medicine contacts for the survey. In the absence of a match using this method, we searched institutional websites for departments or divisions of emergency medicine. Additionally, for CTSA consortium members reporting affiliations with additional hospital systems or universities, we searched affiliates' websites for emergency medicine units. Using these resources, we identified an email address and phone number of person responsible for the emergency care research program. If we could not identify contact information for research leadership, we used contact information for the head of the emergency medicine academic unit. In addition, the initial recipient of the survey was invited to delegate the survey to a more appropriate colleague by forwarding the invitation email, if appropriate. Up to three requests were sent over four months, with emails sent from an investigator's email account. Investigators reached out to remaining non-responders by personal email or telephone contact.

Data sources and measurements

Data were self-reported. The survey was constructed using the Qualtrics platform using a combination of multiple choice, numeric entry, and short answer questions.

Statistical Analysis

We used descriptive statistics to characterize responses to the survey. We also calculated a summary score for CTSA involvement, as the sum of all activities to which the respondent indicated affirmative interaction between emergency care researchers and the local CTSA.

Results

Of the 65 active CTSA institutions in 2012, 62 had identifiable emergency medicine academic units. Of the 62 units, 50 (81%) responded to the survey during the open period from December 2012 through July 2013. One of the 50 declined to participate and three did not complete any questions. The overall response rate was 74%. The CTSA-affiliated emergency medicine units saw a mean of 90,387 (SD 59,534) adult visits; volume ranged from 17,987 to 250,000. Pediatric visits averaged 29,365 (SD 30,792) and ranged from 1000 to 150,000.

Almost half of emergency medicine academic units had a faculty member with a role or title within the CTSA (Table 1). Over 75% of emergency care research programs accessed CTSA-based methodology/biostatistics resources, and over 50% used education and training resources. Over two thirds had submitted pilot projects for funding (n=27), with an 80% success rate (n=22). The median utilization score was 5 (IQR 1–8). About 85% of the emergency medicine units were members of one or more NIH-funded research networks, and 96% were interested in joining a CTSA-based emergency care translational research network.

Discussion

This is the first characterization of the use of CTSA-resources by emergency care research programs, and the first quantification of the possible emergency care research resource available to the CTSA program. The resources available for emergency care research varied widely across the CTSA consortium, as did emergency medicine engagement. Most engagement was around methodology and biostatistics support and education and training programs. Many emergency care research groups had received grants from their local CTSA.

Our data suggest there are significant resources exist within CTSA affiliated EDs, including dedicated research staff working in the emergency department recruiting participants, often 24/7. This resource offers an opportunity for collaboration across the CTSA network that could potentially accelerate the pace of discovery, a key goal of the National Center for Advancing Translational Science (NCATS). While we show potential for CTSA consortium members to benefit from partnering with emergency care researchers, a comprehensive inventory of emergency care research programs that describes in detail the accessible population and the capacity to implement research ranging from clinical trials to health systems and services is an important next step. Our group has recently completed this work, and we demonstrate CTSA can gain access to large, diverse, high-acuity patient populations. Combined with the current data showing national network involvement, there is an opportunity for the CTSA consortium to tap into acute care medicine and foster partnerships with established investigators familiar with collaborative and network research.

For emergency care researchers, enhanced partnerships could offer additional access to resources, collaboration and opportunities for networking and partnerships within and outside of their institution for translational research and research training. The recent Institute of Medicine report has provided suggestions to the CTSA to further promote the acceleration of discovery using the infrastructure and translational research platform in place.¹⁰ While there are many ways for emergency care researchers and the CTSA program to engage, particularly high yield areas include study design and data management and community engagement. This latter is particularly untapped because emergency care researchers commonly access a representative, unfiltered, population of community dwellers both in the emergency department and in the prehospital setting through the emergency medical services. Moreover, as emergency care researchers become adept at community consultation through their research conducted under Exception from Informed Consent initiatives, the role of CTSA-based community engaged researchers has yet to be leveraged.

Importantly, most emergency care research programs contacts were interested in partnering in a CTSA-based emergency research network. One of the goals of the survey was to identify institutions (and contacts) to create a network that could develop collaborative projects across CTSA institutions. As a direct result, the Emergency Care Translational Research Collaborative (ECTRC) was formed. The ECTRC is a voluntary network and currently includes 53 sites. It provides a framework to develop multi-site studies, providing synergy and benefit for the CTSA program while also advancing the science of emergency care. The network has already initiated a number of projects, and is also engaged with the NIH's Office of Emergency Care Research to further the dialogue about the role of emergency care within the broader research environment and to facilitate and coordinate research and training in this area.¹¹ Through these efforts, we expect to change the situation that a relatively small portion of federally funded research projects are emergency medicine generated despite a rather large number of potential targets for research questions and exposure to over 100 million patients per year. Good science that leads to improved patient outcomes is the shared goal of the NIH, the CTSA program, and emergency care researchers.

This work has several important limitations. Our questionnaire solicited self-report and we did not verify information provided. The goal of the questionnaire also was limited to get a preliminary view of resources available and characterize early engagement of emergency care researchers in the CTSA consortium. We recognize that since this survey was conducted, institutional affiliations and relationships with CTSA have likely matured and evolved over time, as has the CTSA program itself. Our results represent a baseline cross-section of the emergency care-CTSA relationship in 2013. We are not aware of other studies characterizing association between different medical specialties and the CTSA consortium; such data would be useful both to contextualize our findings and to inform the CTSA consortium's engagement strategies. Many institutions never responded to numerous queries by multiple methods, so it is not possible to know they have fewer or more resources available to advance their research missions. Responses from members of the NETT network were over-represented in this survey while response from pediatric emergency medicine units were under-represented. The reason for this is unclear, although we note that most NETT sites also participated in the Resuscitation Outcomes Consortium (ROC) and

overlap with the Pediatric Emergency Care Applied Research Network (PECARN). We note that our instrument did not collect data on whether studies funded or submitted to CTSA were observational or interventional, nor did we collect information on whether these were single or multi-center. We also only cursorily assessed availability of emergency care research resources. Additional research is being conducted to capture more granular detail. Finally, we did not specifically seek to measure or quantify research output from the respondents. Correlating CTSA engagement with productivity and impact remains an important area for future study.

In summary, we found a moderate number of emergency care research programs have accessed CTSA related resources. We also note that emergency care research resources may prove to be of utility to the CTSA consortium. There is significant opportunity to further the strategy of engagement between emergency care researchers and the CTSA consortium as the CTSA program is a definite force to accelerate emergency care research.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

William J. Meurer, Disclosures: Grant funding: (Significant) NINDS, NIDCD, AHRQ; Expert Witness: Modest and unrelated)

We wish to thank Rosemarie Filart, MD, MPH for her support of the Emergency Medicine Thematic Interest Group within the National Center for Advancing Translational Science (NCATS).

References

1. Woolf SH. The meaning of translational research and why it matters. *Jama*. 2008; 299:211–213. [PubMed: 18182604]
2. Zerhouni EA. Clinical research at a crossroads: the NIH roadmap. *Journal of investigative medicine*. 2006; 54:171–173. [PubMed: 17152855]
3. Collins FS. Reengineering Translational Science: The Time Is Right. *Science Translational Medicine*. 2011; 3:17.
4. Cairns CB, Maier RV, Adeoye O, et al. NIH Roundtable on Emergency Trauma Research. *Annals of Emergency Medicine*. 2010; 56:538–550. [PubMed: 21036294]
5. D'Onofrio G, Jauch E, Jagoda A, et al. NIH Roundtable on Opportunities to Advance Research on Neurologic and Psychiatric Emergencies. *Annals of Emergency Medicine*. 2010; 56:551–564. [PubMed: 21036295]
6. Miller CD, Kumar R, Storrow AB. Alignment of Emergency Medicine Research Efforts with Clinical and Translational Science Awards. *Academic Emergency Medicine*. 2008; 15:672–677. [PubMed: 19086215]
7. Hollander JE, Gaulton GN, Courtney DM, et al. Facilitating Emergency Care Research Networks: Integration into the Clinical Translational and Science Award (CTSA) Infrastructure. *Academic Emergency Medicine*. 2009; 16:1005–1009. [PubMed: 19799580]
8. Shuster JJ. US Government Mandates for Clinical and Translational Research. *Clinical and Translational Science*. 2012; 5:83–84. [PubMed: 22376263]
9. Schneider M, Guerrero L, Jones LB, et al. Developing the Translational Research Workforce: A Pilot Study of Common Metrics for Evaluating the Clinical and Translational Award KL2 Program. *Clinical and Translational Science*. 2015; 8:662–667. [PubMed: 26602332]

10. Leshner, AI.; Terry, SF.; Schultz, AM.; Liverman, CT. The CTSA Program at NIH:: Opportunities for Advancing Clinical and Translational Research. National Academies Press; 2013.
11. Koroshetz WJ, Brown J. NIH: Developing And Funding Research In Emergency Care And Training The Next Generation Of Emergency Care Researchers. Health Affairs. 2013; 32:2186–2192. [PubMed: 24301404]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

Utilization, Involvement and Characteristics of Emergency Care Research at CTSA institutions (total N=46)

	N	%
Role or title within CTSA (respondent)	11	24%
Role or title within CTSA (other departmental faculty)	10	22%
Types of Research Conducted in Department		
Basic	19	41%
Clinical	45	98%
Translational	33	72%
Community Based	23	50%
Other	4	9%
Number of EDs affiliated with CTSA		
Multiple, same faculty group	13	28%
Multiple, different faculty groups	8	17%
Single	25	54%
Resources / Capabilities of CTSA utilized by department (n=43)		
Databases	17	40%
Informatics	21	49%
Methodology or biostatistics support	33	77%
Grant writing	20	47%
Research coordinator	11	26%
Education/training	26	60%
Nursing	6	14%
Lab services	10	23%
Other	7	16%
History of departmental submission for funding to local CTSA (n=45)		
Have not submitted	11	24%
Pilot project	27	60%
Supplement	9	20%
Education/training	16	36%
Other	6	13%
Research grants awarded to EM investigator from local CTSA		
Pilot project	22	67%
Supplement	7	21%
Education/training	13	39%
Other	9	27%
Previous meetings between respondent and CTSA PI	36	78%
ED Research Patient Screening and Recruitment in Real Time		
Available 24/7	21	46%
Available, but less than 24/7	21	46%
Not Available	4	9%
In-Person Research Coordinators / Associates Utilized		

	N	%
Available 24/7	12	26%
Available, but less than 24/7	32	70%
Not Available	2	4%
Electronic medical records available for secondary use (i.e. data warehouse)	40	87%
Estimated Time To Extract, De-Identify, and Upload To a Central Data Repository for IRB approved/exempt study (n=44)		
< 1 day	3	7%
1 day	7	16%
1–4 weeks	27	61%
2–3 months	2	5%
4–6 months	3	7%
> 6 months	2	5%
Participation in other NIH-funded research networks (n=39)		
Neurological Emergencies Treatment Trials (NETT)	23	59%
Resuscitation Outcomes Consortium (ROC)	8	21%
Pediatric Emergency Care Applied Research Network (PECARN)	6	15%
Other (4 text responses of No or None excluded)	6	15%
Interested In National Emergency Care CTSA Network	44	96%
Willing to participate in demonstration project with national EM CTSA network	41	89%