**APPLICATION FOR ACCESS TO IDENTIFIED EMERGENCY MEDICAL AND TRAUMA SERVICES RECORDS DATA**

New Hampshire Emergency Medical and Trauma Services (EMTS) data are available for health-related research and other uses for evaluation purposes only by application to, review and approval of the Emergency Medical and Trauma Services Records Privacy Committee (ERPC) and approval by the Commissioner of the Department of Safety (DOS). This process is governed by state statute RSA 153-A, 35, Protected Health Information; Privacy Committee Established, federal regulations 45 CFR Part 164.514 under the federal Health Insurance Portability and Accountability Act and 45 CFR Part 46—Protection of Human Subjects

This applicationform provides the information the ERPC requires to determine whether to grant the request for data. The ERPC will consider your request only upon receipt of a completed application. *Any areas of this application left blank without explanation will delay the review of this request. Please provide responses to the questions in the application in this document only.* In addition, you may be required to read and sign a Data Use Agreement (DUA) upon approval of your data request. Please reference the attached document.

The approval process generally takes approximately four to eight weeks after the ERPC receives a completed application. The ERPC meets monthly to review requests and will notify Applicants of the status of their request after the monthly review meeting.

If the ERPC determines that the data requested for the study or project is available through receipt of aggregate data, public use data sets, or creation of proxy variables, it reserves the right to deny the request and redirect the applicant to the appropriate agency or request de-identified EMTS data to obtain the information required.

The ERPC reserves the right to verify anything contained in this application and may contact any Institutional Review Board that has purview over the research project and requested data.

Please send completed application materials to the following address:

*Richard Cooper,*

*Emergency Services Data Manager*

*Division of Fire Standards & Training and EMS*

*33 Hazen Drive*

*Concord, NH 03305*

For questions, please do not hesitate to contact us at (603) 223-4200 and request a member of the Emergency Services Data team or e-mail nhesr@dos.nh.gov.

**Part I: Request for EMTS Data with Direct or Indirect Personal Identification Information**

Complete all application fields along with any required attachments. This information will serve as criteria for the Emergency Medical and Trauma Services Records Privacy Committee’s decision regarding release of confidential data.

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| **Section 1: Application Dates and Title** |
| **Project Reference Name:** | Epidemiology of Traumatic injury and Transport Metrics across the State of New Hampshire using the TEMSIS database.  |
| **Application Date:** | 8/5/2023 | **Desired Start Date:** | 8/5/2023Click here to enter a date. |
| **Internal Use:** | Click here to enter text. | **Desired Completion Date:** | Click here to enter a date. |
| **Section 2: Requestor and Contact Information** |
| **Requestor Name:** | Matthew Anton | **Title:** | **Medical Doctor** |
| **Email:** | Matthew.e.anton@hitchcock.org | **Phone:** | **8153545519** |
| **Address:** | 1 Bassy Street, Lebanon, New Hampshire, 03766 |
| **Organization:** | Dartmouth Health  |
| **Section 3: Principal Investigator (PI) and Contact Information** |
| **PI Name:** | Matthew Anton | **Title:** | **Medical Doctor** |
| **Email:** | Matthew.e.anton@hitchcock.org | **Phone:** | **8153545519** |
| **Address:** | 1 Bassy Street, Lebanon, New Hampshire, 03766 |
| **Section 4: Request Type** |
| [ ]  **Government or Public Health Agency Requesting Access for Injury or Illness Surveillance**[x]  **Conducting Non-Research Program Evaluation** * Systematic approach to assess and provide feedback to improve an established program

[ ]  **Conducting Health or EMS Related Research** * Systematic investigation using scientific methods designed to develop or contribute to generalizable knowledge
 |
| [ ]  **Other Reason:** | Click here to enter text. |
| **Which type of identifiable data do you need based on the table below** (Check all appropriate boxes): |
| **De-Identified Medical Data\*** | **Identifiable Data** |
| [ ]  **De-Identified Medical Data** | [ ]  **Limited Dataset** | [ ]  **Directly Identifiable Data** |
| [x]  Age (Min. 5-Year Grouping) | [x]  Home City | [ ]  Patient Names |
| [x]  Incident Year | [x]  Home County | [ ]  Relative or Guardian Names |
| [x]  Zip Code (First 3-digits) | [ ]  Home Zip Code (5-digits) | [ ]  EMS Crew Names |
| [x]  State | [x]  Incident City | [ ]  Home Street Address |
|  | [x]  Incident County | [ ]  Incident Street Address |
|  | [ ]  Incident Zip Code (5-digits) | [ ]  Telephone Numbers |
|  | [ ]  Patient Date-of-Birth | [ ]  Any Incident Number |
|  | [x]  Patient Age | [ ]  Insurance Information |
|  | [x]  Incident Date/Time | [ ]  Any other unique identifying number, characteristic or code |
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| **Section 5: Summary of Research Study Protocol or Project Activities**  |
| Please complete the following questions describing. Use as much space as you need below to answer the questions. Include a copy of your research/study/project protocol when submitting your application.  |
| **5.1 Full Title of Study or Project** |
| A Descriptive Analysis of Traumatic injury and Transport Metrics across the State of New Hampshire using the TEMSIS database.  |
| **5.2 Summary Purpose of the Study or Project** * Include specifics about the Request Type selected above (research, evaluation, grant application, surveillance, etc.)
* Include a *brief* summary of the project, general goals and intended used of the data (specifics defined in Section 8)
 |
| This projects aim is to characterize traumatic injury and its transport metrics in the state of New Hampshire and provide trauma stakeholders with useful information to plan trauma care and emergency medical services. Metrics such as call location, call time, response time, on-scene time, transport time, trauma mechanism, transport mechanism, pre-hospital mortality, and transport destination can be obtained and assigned to an encounter. Data can then be organized into their respective agencies. Different statistics can then be calculated and mapped including each agencies overall trauma incidence, incidence by mechanism, average transport time, average response time, quantity of severely injured patients, and destination. Characteristics of responding EMS units could be obtained such as compensation status (pay vs volunteer), BLS vs. ALS, staffing, and in-house vs. home call status of EMS units. These characteristics will be evaluated for any associations with transport outcomes. Clear outliers could be researched further once identified. This study would also create a framework that would allow stakeholders at the state level to evaluate effects of past and future policies or advocate and apply for additional funding. This report could serve as the starting point for a periodically generated state trauma surveillance report. In addition to trauma stakeholder usage, EMS stakeholder usage, grant application, and advocacy, an additional intent is to publish the report in a peer reviewed journal in order to contribute to the developing body of knowledge on rural EMS.  |
| **Section 6: Personnel Associated with Study or Project** |
| **6.1 Requestors and Principal Investigators Qualifications and Organizational Affiliation for this Project*** Briefly describe and attach relevant resumes with more detail
 |
| Matthew Anton- 5th year general surgery resident physician and 2nd year leadership and preventive medicine resident physician employed at Dartmouth Health. Licensed physician in the state of New Hampshire and a member of the EAST Trauma Society.  |
| **6.2 Additional Study or Project Personnel** (Other than Principal Investigator and Requestor)* Provide names, roles and affiliations of personnel, subcontractors, and affiliated agencies involved in the project
* Data recipient(s) and project personnel will not use or disclose the information other than permitted by the agreement or otherwise required by law
 |
| Name(s) | Role(s) | Affiliation | Data Access |
| Eric Martin | Investigator | Dartmouth Health Trauma Surgeon, Trauma Service Director, Chair of Trauma Medical Review Committee and Member of Emergency Medical and Trauma Services Control Board | Yes |
| Thomas Trimarco | Investigator | Dartmouth Health Emergency Medicine Physician, DHART Medical Director, Trauma Medical Review Committee and Medical Control Board Member | Yes |
| Matthew Roginski | Investigator  | Dartmouth Health Emergency Medicine and Critical Care Physician, DHART Medical Director | Yes |
| Alexandra Briggs | Investigator | Dartmouth Health Trauma Surgeon, Chair of Rural Care Committee for the Eastern Association of Trauma Surgery Care | Yes |
| Emery Boudreau | Investigator  | Dartmouth Health General Surgery Resident. ATLS instructor  | Y/N |
| Click here to enter text. | Click here to enter text. | Click here to enter text. | Y/N |
| **Section 7: Funding Sources and Sponsors*** Describe the source(s) and duration of all funding for the study (including in-kind contributions)
* Describe any Sponsoring or Umbrella organizations and their goals and/or reasons for sponsorship
* Include the name, address, and a contact number for the agency directly responsible for the funding or sponsoring organization
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| There is no formal funding for the project specifically. The group of physician researchers involved in this project are paid by Dartmouth Health for clinical duties, research, and administrative work at the hospital.  |

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| **Section 8: Study or Project Background and Design*** An attached protocol shall not serve as a replacement for providing answers to the questions below
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| **8.1 Specific Purpose of the Study or Project*** State the specific goal(s) of the project. This should be as focused and detailed as possible and include:
	+ The problem statement / hypothesis / intent of the evaluation for the project
	+ The population to be studied or evaluated
	+ The expected outcomes or findings of the project
	+ The expected beneficiaries of the outcome of the study or project
	+ How this study will benefit New Hampshire residents and/or contribute to general EMS or medical knowledge or EMS system improvement
 |
| Traumatic injury continues to be the number one cause of death for individuals between the ages of 1-44 years old.1,2 Statewide trauma systems have been created and have shown to reduce trauma related morbidity and mortality.3 Access to trauma centers vary by geographic region and there is worse outcomes and burden of trauma per capita in rural areas.4 Factors other than proximity to trauma center can affect trauma outcome, such as geographic and logistical constraints as well as terrain and inclement weather. Similarly, a lack of emergency medical service (EMS) resources in rural areas can lead to variation in the availability of trained personnel and adequate equipment responding to traumatically injured patients. New Hampshire, and the surrounding New England area, is at high risk for excessive burden of trauma morbidity and mortality given its rural nature and location of healthcare resources. The state of New Hampshire has one level 1 trauma center and three level 2 trauma centers. While the average distance between level 1 trauma centers in the United States is 28 miles, the distance from the level 1 trauma center in NH to the next closest is >70 miles.5 New Hampshire has an inclusive state trauma system with all hospitals capable of accepting a trauma patient, but some hospitals are yet to obtain state or American College of Surgeons (ACS) trauma center verification status. The ACS recommended all NH hospitals be verified as trauma centers because of improved patient outcomes.6 Aside from patient care, hospitals that are not within the trauma system have no reporting obligation, which makes understanding the burden of traumatic injury at a state wide level difficult. Understanding the epidemiology of traumatic injuries and their geographic spread across New Hampshire can improve trauma system development.Understanding pre-hospital EMS response to traumatically injured patients offers additional insight into the prevalence and location of patients and EMS resources. The Maine Rural Health Research Center found that 90% of NH counties have an ambulance desert.7 To do this they evaluated the ratio of ambulance stations to population, as well as the amount of ambulance stations per 100,000 square miles. The findings are staggering and highlight concerns about the inability to transport patients due to a lack of resources. While it is valuable to show a lack of ambulance stations relative to population and geographic area, this study did not show actual evidence of extended transport times within the state. One way to add value to this area of research would be to use the Trauma and Emergency Medical Services Information System (TEMSIS) to do a more detailed assessment of trauma patient transport within the state of New Hampshire. Public health practitioners have increasingly used geographic information system (GIS) technology and mapping to approach health issues.8 Visuospatial information has been used in trauma to confirm increasing trauma related mortality in rural trauma patients in Colorado.9 It has been used to map out violent crime in an urban Vancouver, as well as pedestrian versus automobile collisions in Conneticut.10.11 There have been calls for geographic information to be a part of trauma registries to facilitate this area of research. The American Trauma Society has created an interactive map, to assist researchers in their efforts to bring GIS tools to trauma systems. Using maps to evaluate different trauma and pre-hospital transport metrics can be useful for public policy planners, hospital administrations, EMS providers, and other stakeholders committed to the care of trauma patients. This project's aim is to map traumatic injury and its factors in the state of New Hampshire and provide trauma stakeholders with useful information to plan trauma care and emergency medical services. This would include obtaining de-identified patient data from Trauma and Emergency Medical Service Information System (TEMSIS). Transport metrics (see below for detail) will be obtained for each encounter. Using GIS software, we would designate various geographic areas, defined by EMS response units. Our trauma data can then be organized into their respective region. Different statistics can then be calculated and mapped including each region’s overall trauma incidence, incidence by mechanism, average transport time, average response time, quantity of severely injured patients, pre-hospital mortality and destination. Characteristics of responding EMS units would be obtained such as compensation status (pay vs volunteer), BLS vs. ALS, staffing, and in-house vs. home call status of EMS units. These characteristics will be evaluated for any associations with outcomes. Clear outliers could be researched further once identified. This study would also create a framework that would allow stakeholders at the state level to evaluate effects of past and future policies. This report could serve as the starting point for a periodically generated state trauma surveillance report. What is the incidence and geographic distribution of traumatic injuries for which EMS is activated across the state of New Hampshire. What are the differences in EMS response across the state? Other Questions and discussion points that can be addressed with this study.* What is the incidence and prevalence of traumas within each EMS geographic area across the state?
* How different are the transport times of towns with or without a consistently staffed ambulance crew?
* How many traumas that meet field triage criteria are being brought to each hospital across the state and region?
* What proportion of traumatically injured patients are being transported to an ACS trauma center.
* How many air medical transports for trauma patients are being performed in each region across the state?
* How does the population of each EMS geographic area correlate with transport time?
* How does the population of each EMS geographic area correlate with pre-hospital mortality?
* Does having a private or public EMS crew responding to 911 calls lead to different transport metrics?
* Does having EMTs vs. paramedics responding to 911 calls lead to different EMS or pre-hospital outcomes?

References1. Injuries and violence are leading causes of death. Centers for Disease Control and Prevention. https://www.cdc.gov/injury/wisqars/animated-leading-causes.html. Published February 28, 2022. Accessed January 18, 2023.
2. Florence C, Haegerich T, Simon T, Zhou C, Luo F. Estimated lifetime medical and work-loss costs of emergency department–treated nonfatal injuries — United States, 2013. *MMWR Morbidity and Mortality Weekly Report*. 2015;64(38):1078-1082. doi:10.15585/mmwr.mm6438a5
3. Lansink KW, Leenen LP. Do designated trauma systems improve outcome?. *Curr Opin Crit Care*. 2007;13(6):686-690. doi:10.1097/MCC.0b013e3282f1e7a4
4. Jarman MP, Castillo RC, Carlini AR, Kodadek LM, Haider AH. Rural risk: geographic disparities in trauma mortality. *Surgery* 2016; 160(6): 1551-1559. PMid:27506860
5. Sen-Crowe, Brendon MS, BS\*; Sutherland, Mason BS\*; McKenney, Mark MD, MBA, FACS\*,†; Elkbuli, Adel MD, MPH\*. Nationwide Analysis of the Distribution of Level 1 and Level 2 Trauma Centers Per Population Growth and Motor Vehicle Collision Injuries/Fatalities Utilizing Geographic Information Systems Mapping Technology: Toward Optimizing Access to Trauma Care. Annals of Surgery 277(2):p e418-e427, February 2023. | DOI: 10.1097/SLA.0000000000004953
6. MacKenzie EJ, Rivara FP, Jurkovich GJ, Nathens AB, Frey KP, Egleston BL, Salkever DS, Scharfstein DO. A national evaluation of the effect of trauma-center care on mortality. N Engl J Med 2006;354:366–78.
7. Jonk, Y., Milkowski, C., Croll, Z., & Pearson, K. (2023). Ambulance Deserts: Geographic Disparities in the Provision of Ambulance Services [Chartbook]. University of Southern Maine, Muskie School, Maine Rural Health Research Center.
8. Schuurman N, Hameed SM, Fiedler R, Bell N, Simons RK. The spatial epidemiology of trauma: the potential of geographic information science to organize data and reveal patterns of injury and services. *CAN J SURG*. 2008;51(5):389.
9. Yuma P, Orsi R, Dunn J, Kenyon V, Tulanowski E, Stollones L. Traumatic injury and access to care in rural areas: Leveraging linked data and geographic information systems for planning and advocacy. *Rural and Remote Health*. 2019. doi:10.22605/rrh5089
10. Walker BB, Schuurman N, Hameed SM. A GIS-based spatiotemporal analysis of violent trauma hotspots in Vancouver, Canada: identification, contextualisation and intervention. *BMJ Open*. 2014;4(2):e003642. Published 2014 Feb 20. doi:10.1136/bmjopen-2013-003642
11. Braddock M, Lapidus G, Cromley E, Cromley R, Burke G, Banco L. Using a geographic information system to understand child pedestrian injury. *American Journal of Public Health*. 1994;84(7):1158-1161. doi:10.2105/ajph.84.7.1158
 |
| **8.2 Study Design or Project Plan*** Based on the study goal(s) and design of the information to be collected, provide an outline of the study, intended start and completion dates, and intended data collection methodology
 |
| The plan is to start the data analysis as soon as the data is received. Data collection methodology- Data attached to 911 encounters will be requested from DOS. We are also seeking characteristics of each transporting agency. Please see attached excel documents and 8.3 for further data details.  |
| **8.3 Describe the requested case definition(s)** * Define the criteria required for the study while minimizing the scope of the data requested. Include such details as:
	+ Population and date range criteria (e.g., age, gender, geographic regions, incident date range)
	+ Case medical inclusion or filtering criteria (e.g., primary impression, procedures, level or care, etc.)
	+ Incident types (e.g., 911 vs interfacility/medical transports, patient contact, transported calls)
* Wherever possible include the NEMSIS version and NEMSIS element ID (e.g., V3.4 eResponse.XX) related to the criteria
 |
| Population- Patients with traumatic injuries transported by a New Hampshire EMS agency from January 2020 to December 2023. Case medical criteria- All traumatically injured patients (falls, motor vehicle crash, recreational injuries, gunshot wounds, ect) Incident types- 911 calls that are transported to a hospital, are pronounced dead at the scene, or are transferred to another crew such as an air medical crew. Data points for each encounter- encounter ID, injury mechanism, transporting agency, date of service, age, sex, transport mode, 911 call time, 911 EMS dispatch time, response time, on-scene time, transport time, was there a pre-hospital mortality, receiving facility or agency, highest systolic, lowest systolic, GCS, highest heart rate, lowest heart rate, highest respiratory rate, lowest respiratory rate Characteristics of transporting agency- Transporting agency, medical resource hospital, towns served, number of ambulances, Number of ALS ambulances, number of BLS ambulances, number of paramedics, number of EMT-A, number of EMT-B, are the responders paid, is the crew responding from home, total number of paid staff.  |
| **8.4 Describe the Method(s) of Data Analysis*** Describe the method(s) of data analysis and software programs you anticipate using
 |
| The plan will be to use excel and STATA software to do statistical analysis. Basic measures of central tendency such as mean, median and ranges of data may be reported. Additional statistical tests such as calculating a correlation coefficient, odds ratios, incidence, and prevalence may be performed.  |
| **8.5 Reporting of Results*** Do you intend to publish, present or otherwise report on your results?
* What will be the format of your results (e.g., publication, grant application, poster, presentation, dashboard, etc.)?
* What will be the lowest geographical level of published results (e.g., state level, county level, zip code, etc.)?
* How will you manage small cell suppression?
 |
| The tentative plan will be to submit a report to the trauma medical review committee and any other interested parties within the department of safety to be used for system surveillance, quality improvement, grant application, and policy maker decision making. Additionally, the plan is to publish in a peer reviewed EMS or Trauma journal. Findings may also be presented at an academic conference such as EAST Trauma Society conference or the American College of Surgery.  |
| **Section 9: Data Linkage*** Will you be linking to any other databases, software systems or dashboards?
* Will any such linkage result in determination of additional individuals identifying data?
* Please describe the process of linkage
* If conducting surveillance and using a dashboard to display surveillance data, describe where data will be displayed, who will have access to see the results, how displayed data will be de-identified and who will have access to filters for the displayed data and actual raw data
 |
| The only data linkage would be data such as census data and characteristics of responding agency will be used to determine associations with transport metrics.  |
| **Section 10: Contact with Individuals and IRB Approval** |
| **10.1 Will Study or Research Involve Contact with Individuals*** Will the study or project activities involve contact with any persons identified within the requested data records?
* Please explain the need for and the nature of the expected contact.
 |
| The study will not involve contact with any persons in the requested data.  |
| **10.2 IRB Approval*** Do you have IRB approval for this study or project?
* If applicable, please include the current documentation of the Institutional Review Board approval for the study.
* The IRB of record shall be in compliance with the requirements of the U.S. Department of Health and Human Services Code of Federal Regulations for Protection of Human Subjects (45 CFR 46).
 |
| This project was reviewed and approved by the Dartmouth Hitchcock Emergency Medicine Research Advisory Committee. Additionally exempt from the formal IRB process and deemed non-human subjects research.  |
| **Section 11: Data Requested*** NEMSIS V2.2 was collected for the whole state from 2012 until June 2016 when all direct entry users switched to V3.4
* Services using 3rd party software worked to transition to V3.4 from V2.2 until June 2019
* Data are from both versions from June 2016 to June 2019 with the bulk of the data being V3.4
* NH did not accept or collect any V3.3.4 data
* No V3.5 data will be available until after July 1, 2023
 |
| **11.1 Datasets Requests** |
| **Dataset Requested** | **Time Range Required for Study or Project** |
| [ ]  NEMSIS Version 2.2 | Click here to enter text. |
| [x]  NEMSIS Version 3.4 | January 2020- June 2023 |
| **11.2 Data Fields Requested*** Provide an Excel table with the data fields requested for your desired version(s) using the NEMSIS Element Name and Number
* Include a column for NEMSIS Version, NEMSIS Element Number, NEMSIS Element Name and Reason for collecting (See attached Table template)
* For V3.4 data, include whether you wish to have Not Values and Pertinent Negatives included
* Enter additional comments below, if desired
 |
| Attached is an excel file with the data fields we are requesting. I am unable to find the specific NEMSIS Element Names and Number.  |
| **11.3 Data Format Requested*** Data will be provided through a secure FTP site
* Select format below, only select one
* Larger requests fulfilled directly from the Software vendor may be available in different formats
 |
| [ ]  PDF | [x]  MS Excel | [ ]  CSV | [ ]  XML |
| **Section 12: Attachments*** The Following Forms Must be Attached to this Request
 |
| [x]  Resumes of Requestor and Principal Investigator[x]  Full Study or Project Protocol[x]  Excel document with fields requested[x]  IRB Approval (if applicable)[x]  Data Management and Security Plan Form (if data is identifiable)[ ]  Data Use Agreement[ ]  Other supporting documents you feel will benefit approval of your request   |

***I/we have reviewed the request form. All statements made in the request form are true, complete, and correct to the best of my/our knowledge, and I/we agree to abide by the aforementioned stipulations.***

|  |  |
| --- | --- |
| Name of Requestor:Matthew Anton | Name of Principal Investigator:Matthew Anton |
| Signature Date:**6/3/2024** | Signature Date:**6/3/2024** |
| Signature:Matthew Anton | Signature:Matthew Anton |