**Brief Protocol:** Occupational exposure is cited as a major risk factor for performing an emergency department thoracotomy (EDT). Our objective is to quantify the EDT occupational exposure rate along with possible risk factors. A multi-institutional study will be performed where practitioners will be asked to complete a short survey after an EDT. Survey data will be analyzed and a retrospective registry review of the involved patients will be performed to identify risk factors and actual exposure rates.

**Abstract:** Occupational exposure is frequently cited as a major risk factor for performing an emergency department thoracotomy (EDT), but has not been studied extensively. The trauma population is known to be at high risk for blood borne pathogens. Also, the transmission rates once exposure has occurred have been described. The risk of actual exposure, however, has not been well quantified. Our objective is to quantify the EDT occupational exposure rate along with possible risk factors. A multi-institutional study will be performed where practitioners will be asked to complete a short survey after an EDT. Questions such as protective gear worn, if there was an exposure, and when the exposure occurred will be asked. Additionally, a retrospective registry review of the involved patients will be performed to identify risk factors and actual exposure rates. Once the risk of occupational blood exposure is quantified, the actually risk of disease transmission to the provider can be calculated. The study's conclusion will offer both a quantified risk of exposure and disease transmission along with associated risk factors.

**Background:** Emergency department thoracotomy (EDT) remains one of the most controversial surgical procedures ever performed. Patients who suffer from traumatic arrest and undergo an emergency department thoracotomy, in general, have poor outcomes; those that survive the procedure are often burdened with significant neurological deficits. In one review of 4620 patients over a 25 year period, an overall survival rate of 7.4% was noted. Much has been written regarding the indications, utility and outcomes of EDT and debate regarding this highly controversial topic almost universally centers on a discussion about cost and benefit. Cost is not only defined as the economic impact of the procedure and subsequent care, but also as the risk to the provider. Occupational exposure is frequently discussed as a major risk to performing an emergency department thoracotomy. The trauma population has been well defined as a high risk population, with a prevalence of HIV, hepatitis B, and hepatitis C well above the general population. Despite this high risk group and the frequent acknowledgment of the high risk for exposure, the actual incidence of occupational blood exposure while performing an EDT has not been well defined.

**Hypothesis:** EDT places providers at significant risk for occupational blood exposure.

**Study objective:**
1. To determine the incidence of occupational blood exposure during EDT
2. To characterize risk factors, both patient and situational, during EDT that lead to occupational blood exposure

**Methods:** A prospective observational American Association for the Surgery of Trauma (AAST) multi-institutional trial analyzing emergency department thoracotomies performed at trauma centers throughout the United States will be performed. After each EDT, each member of the care team involved in the resuscitation will complete a questionnaire. The primary endpoint will be occupational exposure during the thoracotomy. Secondary endpoints will include observance of universal precautions and proper reporting of occupational exposures using institutional protocols. Data will be sent after each EDT via secure email to the sponsoring institution (University of Pennsylvania) where it will be entered into a RedCap database. At the conclusion of data collection (approximately 1-2 years), a
comprehensive statistical analysis will be performed to quantify the actual risk of occupational exposure to both the primary surgeon, assistants, and other staff during emergency department thoracotomy. The known incidence of blood borne pathogens in the trauma population, multiplied by the rate of transmission after exposure, will be multiplied by the rate of exposure determined in order to calculate the actual risk to providers. Individual patient data will be collected from each institution’s trauma registry for further analysis of risk factors for occupational exposure. All participating institutions will be required to obtain approval from their respective institutional review board.

**# centers/pts:** Goal enrollment will be 200 patients from multiple trauma centers across the United States. Each EDT will have at least one primary surgeon, along with multiple students, nurses, and other assistants. Thus, each EDT will have 4-5 individuals that are at risk for occupational exposure. With this, approximately 1000 individuals will be analyzed for exposure during EDT.

**Dataset:**

**Survey sheets:** see attached

**Timeline:**

- March 2015: IRB Submission, Contact AAST-MIT committee chair
- April 2015: Prepare Survey Instrument and Data Collection Method (RedCap, unique email address for survey responses); contact possible collaborating centers
- May 2015: Roll out study on AAST website (remembering that each institution will have to go through their respective IRB prior to data collection.
- January 2016: Interval data analysis
- March 1, 2016: Consider abstract submission if adequate data accrued; otherwise continue data collection thru Jan 2017.

**References:**


