**Supplemental Document 1. Pre-review protocol**

**Objective**

The objective of this scoping review is to adopt a structured approach to evaluating and synthesizing existing literature on the management of patients with embedded ordnance. This review will conceptually map existing literature by category including area of focus, population, setting, methodology, etc. In doing so, we will identify gaps in existing research and define areas for future study. We will assess granularity in existing literature regarding types of ordnance, injury patterns and mechanisms, diagnostic workup, resource utilization, surgical intervention, and outcomes as well as any comparative differences noted between civilian and military populations. In addition to defining areas for further research, this review will highlight any previously identified mitigation strategies to minimize harm to patients and medical providers from the consequences of embedded ordnance.

**Research Questions**

* What literature (academic and grey literature) exists on management of embedded ordnance? What guidelines exist, and from what evidence were these derived?
* What types of embedded ordnance are addressed in the literature, and is there predominance of any type? Does management differ by type of ordnance (i.e. is this a relevant distinction for guideline development)?
* What detection methods and technologies are used in identifying embedded ordnance? What are the limitations of these technologies?
* What diagnostic modalities are safe to use in the workup and management of patients with embedded ordnance?
* What are the current mitigation strategies for minimizing harm to patients and medical providers from the consequences of embedded ordnance? What are the limitations of these strategies?
* What are the (co)morbidities and mortality rates of embedded ordnance for patients and care providers?
* What are the current evidence and research gaps in the management of embedded ordnance?

**Search Strategy and Information Sources**

The search aims to identify peer-reviewed articles, conference papers, and grey literature addressing the management of embedded ordnance. The methodology will be a scoping review utilizing PRISMA-ScR standards. A broad search strategy will utilize electronic databases including PubMed, Google Scholar, JSTOR, and organizational materials relevant to the clinical topic (e.g., United States [US] Military and nongovernmental organization [NGO] practice guidelines.) Targeted keywords and database-specific search terms such as “embedded,” “ordnance,” “injury,” “grenade,” “rocket,” “RPG,” and “mortar” will be used in Boolean search logic combinations. Grey literature searching will involve manual review of organizational websites and non-peer-reviewed reports containing original data on embedded ordnance management. Search results will be imported into citation management software (EndNote) and duplicate records removed prior to screening.

**Eligibility Criteria**

Inclusion Criteria:

* Peer-reviewed articles, conference papers, and grey literature that address the management of embedded ordnance
* All intervention types or outcomes related to this subject will be included, including type(s) of ordnance, detection methods, mitigation strategies, injuries/injury patterns, morbidities, and mortality
* Given limited existing data on the topic of interest, no date restrictions will be applied
* All geographic regions will be eligible for inclusion
* All languages will be eligible for inclusion
* Civilian and military patient populations will both be eligible for inclusion

Exclusion Criteria:

* Reports without full text availability
* Reports solely describing management of explosive ordnance disposal without consideration of patient care

**Data Selection**

A minimum of two reviewers will screen titles and abstracts for eligibility.Conflicts will be arbitrated by a senior reviewer at both title/abstract and full text phases. The full text of records meeting eligibility criteria will then be screened for relevance to eligibility criteria by two independent reviewers. Reference lists of all reports eligible for inclusion will also be screened.

**Data Extraction and Management**

A standardized extraction form will be developed to ensure uniform data collection from eligible studies. Extracted information will include: study bibliographic details, patient population demographics, injury details (mechanism, involved anatomy, severity scores), ordnance specifics, diagnostic and therapeutic procedures utilized, patient outcomes, and any notable limitations. If multiple publications arise from the same patient cohort, care will be taken to avoid including duplicative data. Extracted data will be managed in Excel. Variables of interest will include:

* Bibliographic information for each study (author, year, title, etc.)
* Study details (e.g. methodology)
* Study setting
* Patient population (age, gender, ethnicity, combatant status, etc.)
* Injury mechanism
* Anatomical regions of injury
* Injury severity scoring, if available
* Type of ordnance
* Detection method
* Utilization of diagnostic modalities (ultrasound, XR, CT, etc.)
* Procedures (e.g. surgical intervention)
* Patient outcomes: morbidity, mortality, and functional outcomes (i.e. disability), if available
* Any associated data regarding harm to bystanders or medical providers

**Quality Assessment (e.g. risk of bias)**

Given anticipated limitations in study design and heterogenous reporting in relevant literature, no studies will be excluded based solely on assessment of bias/quality. Reports eligible for inclusion will undergo evaluation of susceptibility to bias using an adapted Newcastle-Ottawa Scale for cohort studies or a modified GRADE approach for other study designs. Quality assessment will focus on domains of selection bias, measurement bias, and confounding to allow characterization of the overall quality and confidence in estimates generated by this body of literature.

**Data Analysis**

Due to anticipated heterogeneity in reports on the topic of interest including, methods utilized, populations examined, and outcomes assessed, quantitative synthesis is not anticipated to be feasible for most outcomes of interest. Instead, a qualitative approach will synthesize results narratively in text and tables/graphs through the utilization of descriptive statistics and thematic trend analysis. Summary statistics will describe the types of existing literature and topics covered. Visual plots will map study characteristics, while thematic analysis will inductively categorize and link related conceptual elements. Evidence clusters and gaps will highlight future research needs and priorities.

**Keywords**

Embedded ordnance; injury; explosive weapons; grenade; rocket; RPG; mortar; UXO; civilian casualties; conflict; humanitarian care