Prevention of Surgical Site Infections After Major Extremity Trauma

Appropriate Use Criteria

Adapted by:
The American Academy of Orthopaedic Surgeons Board of Directors
March 21, 2022

Endorsed by:

Please cite this Appropriate Use Criteria as: American Academy of Orthopaedic Surgeons Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma
https://www.aaos.org/SSItramaauc Published March 21, 2022

Disclaimer
Volunteer physicians from multiple medical specialties created and categorized these Appropriate Use Criteria. These Appropriate Use Criteria are not intended to be comprehensive or a fixed protocol, as some patients may require more or less treatment or different means of diagnosis. These Appropriate Use Criteria represent patients and situations that clinicians treating or diagnosing musculoskeletal conditions are most likely to encounter. The clinician's independent medical judgment, given the individual patient's clinical circumstances, should always determine patient care and treatment.

Disclosure Requirement
In accordance with American Academy of Orthopaedic Surgeons (AAOS) policy, all individuals whose names appear as authors or contributors to this document filed a disclosure statement as part of the submission process. All authors provided full disclosure of potential conflicts of interest prior to participation in the development of these Appropriate Use Criteria. Disclosure information for all panel members can be found in Appendix B.

Funding Source
These Appropriate Use Criteria were funded exclusively through a research grant provided by the United States Department of Defense with no funding from outside commercial sources to support the development of this document.

FDA Clearance
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Published 2019 by the Major Extremity Trauma and Rehabilitation Consortium (METRC) in collaboration with the American Academy of Orthopaedic Surgeons (AAOS)
9400 West Higgins Road
Rosemont, IL 60018
First Edition
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For a more user-friendly version of this AUC, or to view additional AUCs, please visit the AAOS AUC web-based app at:

www.OrthoGuidelines.org/auc

To view the clinical practice guideline for this topic, please visit https://www.aaos.org/metrcdod/

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I. INTRODUCTION

OVERVIEW

METRC and AAOS have developed this Appropriate Use Criteria (AUC) to determine appropriateness of various treatments for the prevention of surgical site infection (SSI) after major extremity trauma.

An "appropriate" healthcare service is one for which the expected health benefits exceed the expected negative consequences by a sufficiently wide margin.[1] Evidence-based information, in conjunction with the clinical expertise of physicians from multiple medical specialties, was used to develop the criteria in order to improve patient care and obtain the best outcomes while considering the subtleties and distinctions necessary in making clinical decisions. To provide the evidence foundation for this AUC, the AAOS Department of Clinical Quality and Value provided the writing panel and voting panel with the AAOS/METRC Clinical Practice Guideline on SSI, which can be accessed via the following link:
http://www.orthoguidelines.org/topic?id=1040

The purpose of this AUC is to help determine the appropriateness of clinical practice guideline recommendations for the heterogeneous patient population routinely seen in practice. The best available scientific evidence is synthesized with collective expert opinion on topics where gold standard randomized clinical trials are not available or are inadequately detailed for identifying distinct patient types. When there is evidence corroborated by consensus that expected benefits substantially outweigh potential risks, exclusive of cost, a procedure is determined to be appropriate. The AAOS uses the RAND/UCLA Appropriateness Method (RAM)[1] to assess the appropriateness of a particular treatment. This process includes reviewing the results of the evidence analysis, compiling a list of clinical vignettes, and having an expert panel comprised of representatives from multiple medical specialties to determine the appropriateness of each of the clinical indications for treatment as "Appropriate," "May be Appropriate," or "Rarely Appropriate." To access a more user-friendly version of the appropriate use criteria for this topic online, please visit our AUC web-based application at www.orthoguidelines.org/auc or download the OrthoGuidelines app from Google Play or Apple Store.

These criteria should not be construed as including all indications or excluding indications reasonably directed to obtaining the same results. The criteria intend to address the most common clinical scenarios facing qualified physicians managing patients to prevent SSI. The ultimate judgment regarding any specific criteria should address all circumstances presented by the patient and the needs and resources particular to the locality or institution. It is also important to state that these criteria and are not meant to supersede clinician expertise and experience or patient preference.

INTERPRETING THE APPROPRIATENESS RATING

To prevent misuse of these criteria, it is extremely important that the user of this document understands how to interpret the appropriateness ratings. The appropriateness rating scale ranges from one to nine and there are three main range categories that determine how the median rating is defined (i.e., 1-3 = "Rarely Appropriate", 4-6 = "May Be Appropriate", and 7-9 = "Appropriate"). Before these AUCs are consulted, the user should read through and understand all contents of this document.

INCIDENCE AND PREVALENCE

Major extremity trauma combines multiple injury types with varying degrees of incidence and prevalence. For this reason, there are significant limitations in accurately determining the true incidence and prevalence of major extremity trauma. Within this limitation, open fractures have an incidence between 11.5 - 13 per 100,000 persons.[2,3] In the United States in 2013, there were 27,900 and 2,700 hospital discharges due to firearm and explosive injuries, respectively.[4]

Between 2001-2017, U.S. military data demonstrates over 1,700 combat-related amputations, with 31% of patients having multiple amputations. Over 70% of these amputations resulted from an improvised explosive device, and 84% involved a lower limb.[5] In the U.S., the 2020 prevalence of traumatic amputation is estimated at 906,000 and is expected to rise to 1.3 million by 2050.[6]

ETIOLOGY

Major Extremity Trauma can result from numerous mechanisms. These injuries include those occurring in combat arenas as well as those presenting to civilian trauma centers. Consideration of the etiology, mechanism of injury, soft tissue envelope, neurovascular structures, bony integrity, and comorbidities need to be considered when treating these injuries.

POTENTIAL BENEFITS, HARMS, AND CONTRAINDICATIONS

Although many interventions have been advocated to reduce the risk of infection when managing orthopaedic trauma and fractures, all surgical procedures have an increased probability of surgical site infection following trauma. Infection of the surgical site is independently associated with an increased risk of nonunion, increased risk of the need for further surgery, increased risk of implant failure, and a prolonged Length of Stay (LOS), as well as the greater cost associated with these complications.

II. METHODS

This AUC for SSI is based on a review of the available literature and a list of clinical scenarios (i.e. criteria) constructed and voted on by experts in orthopaedic surgery and other relevant medical fields. This section describes the methods adapted from RAM[1]. This section also includes the activities and compositions of the various panels that developed, defined, reviewed, and voted on the criteria.

Two panels participated in the development of the SSI AUC, a writing panel and a voting panel. Members of the writing panel developed a list of patient scenarios and relevant treatment options. Additional detail on how the writing panel developed the patient scenarios and treatments is below. The voting panel participated in two rounds of voting. During the first round, the voting panel was given approximately one month to independently rate the appropriateness of each the provided treatments for each of the relevant patient scenarios as 'Appropriate', 'May Be Appropriate', or 'Rarely Appropriate' via an electronic ballot. How the voting panel rates for appropriateness is described in more detailed below. After the first round of voting/appropriateness ratings were submitted, AAOS staff calculated the median ratings for each patient scenario and specific treatment. An virtual voting panel meeting was held on Saturday, June 19, 2021. During this meeting voting panel members addressed the scenarios/treatments which resulted in disagreement from round one voting. The voting panel members discussed the list of assumptions, patient indications, and treatments to identify areas that needed to be clarified/edited. After the discussion and subsequent changes, the group was asked to rerate their first-round ratings during the voting panel meeting, only if they were persuaded to do so by the discussion and available evidence. There was no attempt to obtain consensus about appropriateness.

The AAOS Committee on Evidence Based Quality and Value, the AAOS Council on Research and Quality, and the AAOS Board of Directors sequentially approve all AAOS AUC.

DEVELOPING CRITERIA

Panel members of the SSI AUC developed patient scenarios using the following guiding principles:

1) **Comprehensive** – Covers a wide range of patients.
2) **Mutually Exclusive** - There should be no overlap between patient scenarios/indications.
3) **Homogenous** –The final ratings should result in equal application within each of the patient scenarios.
4) **Manageable** – Number of total voting items (i.e., # of patient scenarios x # of treatments) should be practical for the voting panel. Target number of total voting items = 2000-6000. This means that not all patient indications and treatments can be assessed within one AUC.

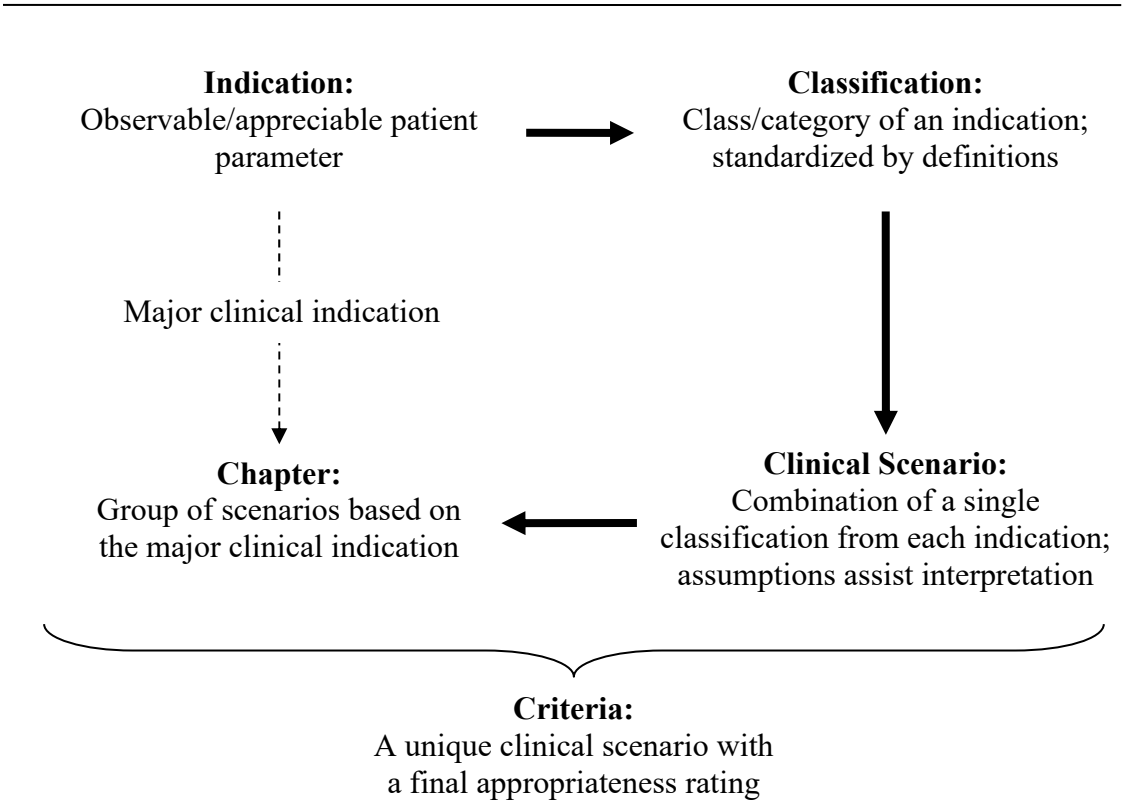
The writing panel developed the scenarios by categorizing patients in terms of indications evident during the clinical decision-making process. These scenarios relied upon definitions and general assumptions, mutually agreed upon by the writing panel during the development of the scenarios. These definitions and assumptions were necessary to provide consistency in the

interpretation of the clinical scenarios among experts voting on the scenarios, and readers using the final criteria.

FORMULATING INDICATIONS AND SCENARIOS

The AUC writing panel began the development of the scenarios by identifying clinical indications typical of patients suspected of developing SSI in clinical practice. Indications are most often parameters observable by the clinician, including symptoms or results of diagnostic tests.
Additionally, "human factor" (e.g., activity level) or demographic variables can be considered.

FIGURE 1. DEVELOPING CRITERIA



Indications identified in clinical trials, derived from patient selection criteria, included in AAOS Clinical Practice Guidelines (http://www.orthoguidelines.org/topic?id=1040) served as a starting point for the writing panel, as well as ensured that these AUCs referenced the evidence base for this topic. The writing panel considered this initial list and other indications based on their clinical expertise and selected the most clinically relevant indications (Table 4). The writing panel then defined distinct classes for each indication to stratify/categorize the indication (Table 4).

The writing panel organized these indications into a matrix of clinical scenarios that addressed all combinations of the classifications. The writing panel was given the opportunity to remove

any scenarios that rarely occur in clinical practice but agreed that all scenarios were clinically relevant. The major clinical decision-making indications chosen by the writing panel divided the matrix of clinical scenarios into chapters, as follows: clinical symptoms, difference in perfusion pressure, and biomarkers/labs.

CREATING DEFINITIONS AND ASSUMPTIONS

The SSI AUC writing panel constructed concise and explicit definitions for the indications and classifications. This standardization helps ensure that the way the writing panel defined the patient indications is consistent among those reading the clinical scenario matrix or the final criteria. Definitions create explicit boundaries when possible and are based on standard medical practice or existing literature.

Additionally, the writing panel formulated a list of general assumptions in order to provide more consistent interpretations of a scenario. These assumptions differed from definitions in that they identified circumstances that exist outside of the control of the clinical decision-making process. Assumptions also address the use of existing published literature regarding the effectiveness of treatment and/or the procedural skill level of physicians. Assumptions also highlight intrinsic methods described in this document such as the role of cost considerations in rating appropriateness, or the validity of the definition of appropriateness. The main goal of assumptions is to focus scenarios so that they apply to the average patient presenting to an average physician at an average facility.

The definitions and assumptions should provide all readers with a common starting point in interpreting the clinical scenarios. The list of definitions and assumptions accompanied the matrix of clinical scenarios in all stages of AUC development and appears in the Writing Panel section of this document.

LITERATURE REVIEW

The Clinical Practice Guideline on the Prevention of Surgical Site Infection after Major Extremity Trauma, was used as the evidence base for this AUC (see here: http://www.orthoguidelines.org/topic?id=1040). This guideline helped to inform the decisions of the writing panel and voting panel where available and necessary.

VOTING PANEL MODIFICATIONS TO WRITING PANEL DOCUMENT

At the start of the in-person voting panel meeting, the voting panel was reminded that they can amend the original writing panel materials if the amendments resulted in more clinically relevant and practical criteria. To amend the original materials, instructed voting panel member must make a motion to amend and another member must “second” that motion, after which a vote is conducted. If the majority of voting panel members voted “yes” to amend the original materials, the amendments were accepted.

DETERMINING APPROPRIATENESS

VOTING PANEL

As mentioned above, a multidisciplinary panel of clinicians was assembled to determine the appropriateness of treatments for the SSI AUC. A non-voting moderator, who is an orthopaedic surgeon, but is not a specialist in the diagnosis or management of SSI, moderated the voting panel. The moderator was familiar with the methods and procedures of AAOS Appropriate Use

Criteria and led the panel (as a non-voter) in discussions. Additionally, no member of the voting panel was involved in the development, i.e., writing panel, of the scenarios.

The voting panel used a modified Delphi procedure to determine appropriateness ratings. The voting panel participated in two rounds of voting while considering evidence-based information provided in the literature review.

RATING APPROPRIATENESS

When rating the appropriateness of a scenario, the voting panel considered the following definition:

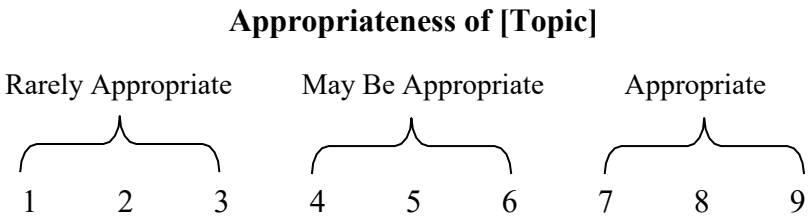
> "An appropriate procedural step for a patient suspected of SSI is one for which the procedure **is** generally acceptable, **is** a reasonable approach for the indication, and **is** likely to improve the patient's health outcomes or survival."

The voting panel rated each scenario using their best clinical judgment, taking into consideration the available evidence, for an average patient presenting to an average physician at an average facility as follows:

FIGURE 2. INTERPRETING THE 9-POINT APPROPRIATENESS SCALE

Rating	Explanation
7-9	**Appropriate**: Appropriate for the indication provided, meaning treatment **is** generally acceptable and **is** a reasonable approach for the indication and **is** likely to improve the patient's health outcomes or survival.
4-6	**May Be Appropriate**: Uncertain for the indication provided, meaning treatment **may** be acceptable and **may** be a reasonable approach for the indication, but with uncertainty implying that more research and/or patient information is needed to further classify the indication.
1-3	**Rarely Appropriate**: **Rarely** an appropriate option for management of patients in this population due to the lack of a clear benefit/risk advantage; **rarely** an effective option for individual care plans; exceptions should have documentation of the clinical reasons for proceeding with this care option (i.e. procedure is not generally acceptable and is not generally reasonable for the indication).

Each panelist uses the scale below to record their response for each scenario:



ROUND ONE VOTING

The first round of voting occurred after approval of the final indications, scenarios, and assumptions by the writing panel. The voting panel rated the scenarios electronically using the AAOS AUC Electronic Ballot Tool, a personalized ballot created by AAOS staff. There was no interaction between voting panel members while completing the first round of voting. Panelists considered the following materials:

- The instructions for rating appropriateness
- The completed literature review, that is appropriately referenced when evidence is available for a scenario
- The list of indications, definitions, and assumptions, to ensure consistency in the interpretation of the clinical scenarios

ROUND TWO VOTING

The second round of voting occurred during the virtual voting panel meeting on June 19, 2021. Prior to the in-person meeting, each voting panelist received a personalized document that included his/her first-round ratings along with summarized results of the first-round ratings that resulted in disagreement. These results indicated the frequency of ratings for a scenario for all panelists. The document contained no identifying information for other panelists' ratings. The moderator also used a document that summarized the results of the panelists' first round voting. These personalized documents served as the basis for discussions of scenarios which resulted in disagreement.

During the discussion, the voting panel members were allowed to add or edit the assumptions list, patient indications, and/or treatments if clarification was needed. Voting panel members were also able to record a new rating for any scenarios/treatments, if they were persuaded to do so by the discussion and/or the evidence. There was no attempt to obtain consensus among the panel members. After the final ratings were submitted, AAOS staff used the AAOS AUC Electronic Ballot Tool to export the median values and level of agreement for all voting items.

FINAL RATINGS

Using the median value of the second-round ratings, AAOS staff determined the final levels of appropriateness. Disagreement among raters can affect the final rating. Agreement and disagreement were determined using the BIOMED definitions of Agreement and Disagreement, as reported in the RAND/UCLA Appropriate Method User's Manual[1], for a panel of 17-19 voting members (see Figure 3 below). The 17-19 panel member disagreement cutoff was used for this voting panel. For this panel size, disagreement is defined as when ≥ 6 members' appropriateness ratings fell within the appropriate (7-9) and rarely appropriate (1-3) ranges for

any scenario (i.e., ≥ 6 members' ratings fell between 1-3 and ≥ 6 members' ratings fell between 7-9 on any given scenario and its treatment). If there is still disagreement in the voting panel ratings after the last round of voting, that voting item is labeled as "5" regardless of median score. Agreement is defined as ≤ 5 panelists rated outside of the 3-point range containing the median.

FIGURE 3. DEFINING AGREEMENT AND DISAGREEMENT FOR APPROPRIATENESS RATINGS

	Disagreement	**Agreement**
Panel Size	Number of panelists rating in each extreme (1-3 and 7-9)	Number of panelists rating outside the 3-point region containing the median (1-3, 4-6, 7-9)
8,9,10	≥ *3*	≤ *2*
11,12,13	≥ 4	≤ 3
14,15,16	≥ 5	≤ 4
17,18,19	**≥ 6**	**≤ 5**

Adapted from RAM [1]

The classifications in the table below determined final levels of appropriateness.

FIGURE 4. INTERPRETING FINAL RATINGS OF CRITERIA

Level of Appropriateness	**Description**
Appropriate	• Median panel rating between 7-9 and no disagreement
May Be Appropriate	• Median panel rating between 4-6 or • Median panel rating 1-9 with disagreement
Rarely Appropriate	• Median panel rating between 1-3 and no disagreement

REVISION PLANS

These criteria represent a cross-sectional view of current methods for diagnosis and management of SSI and may become outdated as new evidence becomes available or clinical decision-making indicators are improved. In accordance with the standards of the National Guideline Clearinghouse, AAOS will update or withdraw these criteria in five years. AAOS will issue updates in accordance with new evidence, changing practice, rapidly emerging treatment options, and new technology.

DISSEMINATING APPROPRIATE USE CRITERIA



All AAOS AUCs can be accessed via a user-friendly app that is available via the OrthoGuidelines website (www.orthoguidelines.org/auc) or as a native app via the Apple and Google Play stores.

Publication of the AUC document is on the AAOS website at [http://www.aaos.org/auc]. This document provides interested readers with full documentation about the development of Appropriate Use Criteria and further details of the criteria ratings.

AUCs are first announced by an Academy press release and then published on the AAOS website. AUC summaries are published in the *AAOS Now* and the Journal of the American Academy of Orthopaedic Surgeons (JAAOS). In addition, the Academy's Annual Meeting showcases the AUCs on Academy Row and at Scientific Exhibits.

The dissemination efforts of AUC include web-based mobile applications, webinars, and online modules for the Orthopaedic Knowledge Online website, radio media tours, and media briefings. In addition, AUCs are also promoted in relevant Continuing Medical Education (CME) courses and distributed at the AAOS Resource Center.

Other dissemination efforts outside of the AAOS include submitting AUCs to the National Guideline Clearinghouse and to other medical specialty societies' meetings.

PATIENT INDICATIONS AND TREATMENTS

Assumptions

1. This AUC only applies to high energy extremity trauma patients who are being considered for surgical intervention.
2. This AUC only applies to adult patients without current infection at site of extremity trauma.
3. This AUC only covers the initial presentation.
4. The appropriate surgical interventions have been determined for the given injury; surgical stabilization has been achieved.
5. All patients will be monitored for ongoing infection and allergy after treatment.
6. Consultations with trauma, vascular, plastic surgeons, infectious disease and internal medicine should be considered as indicated for appropriate cases when available.
7. If necessary, transfer to a trauma center with soft tissue coverage capability should be initiated when practical for open fractures requiring soft tissue coverage.
8. Specific antibiotic management is beyond the scope of this AUC, but institutional or other appropriate antibiotic administration protocols should be followed according to the needs of the patient.
9. Risk factors including glucose control, nutrition optimization, *Staphylococcus aureus* colonization, smoking cessation, and immune modulating agents are acknowledged and addressed as is practical given acute nature of trauma.
10. It is possible that more than one treatment is appropriate for a patient.

Exclusions:

1. Patients without high energy extremity trauma

Definitions:

- High Energy Extremity Trauma includes:
    - All Injury types listed below are limited to the context of extremity fractures
        1. Most open fractures
        2. Certain closed fractures (comminuted, intra-articular, soft tissue compromise)
        3. Degloving injury/Morel-Lavallee lesions
        4. Gunshot injury (low and high velocity)
        5. Crush injury
        6. Blast injury
        7. Moderate to high energy force

Primary Closure: refers to non-surgical incisions
Closed Fracture Debridement: refers excisional debridement of significant muscle necrosis

Disclaimer:

Volunteer physicians from multiple medical specialties created and categorized these Appropriate Use Criteria. These Appropriate Use Criteria are not intended to be comprehensive or a fixed protocol, as some patients may require more or less treatment or different means of diagnosis. These Appropriate Use Criteria represent patients and situations that clinicians treating or diagnosing musculoskeletal conditions are most likely to encounter. The clinician's independent medical judgment, given the individual patient's clinical circumstances, should always determine patient care and treatment.

INDICATIONS

PATIENT INDICATIONS AND CLASSIFICATIONS

Injury Classification

- Closed (comminuted, intra-articular, vascular injury; Soft tissue compromise: severe blistering, extensive abrasions, massive swelling, local ischemia)
- Gustilo Anderson Type 1 or 2
- Gustilo Anderson Type 3a
- Gustilo Anderson Type 3b, c

Soft Tissue Characteristic(s)

- Closed injury: Significant soft tissue compromise (e.g., Fracture, blisters, massive swelling)
- Open injury: Minimal/none surface contamination; Superficial penetrating injury
- Open injury: Severe contamination; Marine environment; Military blasts; High energy penetrating injury; Crush injury; Compartment Syndrome

Host Factors/Medical Status

- No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index $\leq$3)
- Multiple Comorbidities (frail, ASA 3-4, Charlson Index $\geq$4)

Surgical Treatment Administered

- Acute definitive internal fixation (ORIF/IMN)
- Acute definitive External Fixator
- Temporary acute external fixator, with plan for staged definitive internal fixation (ORIF/IMN)

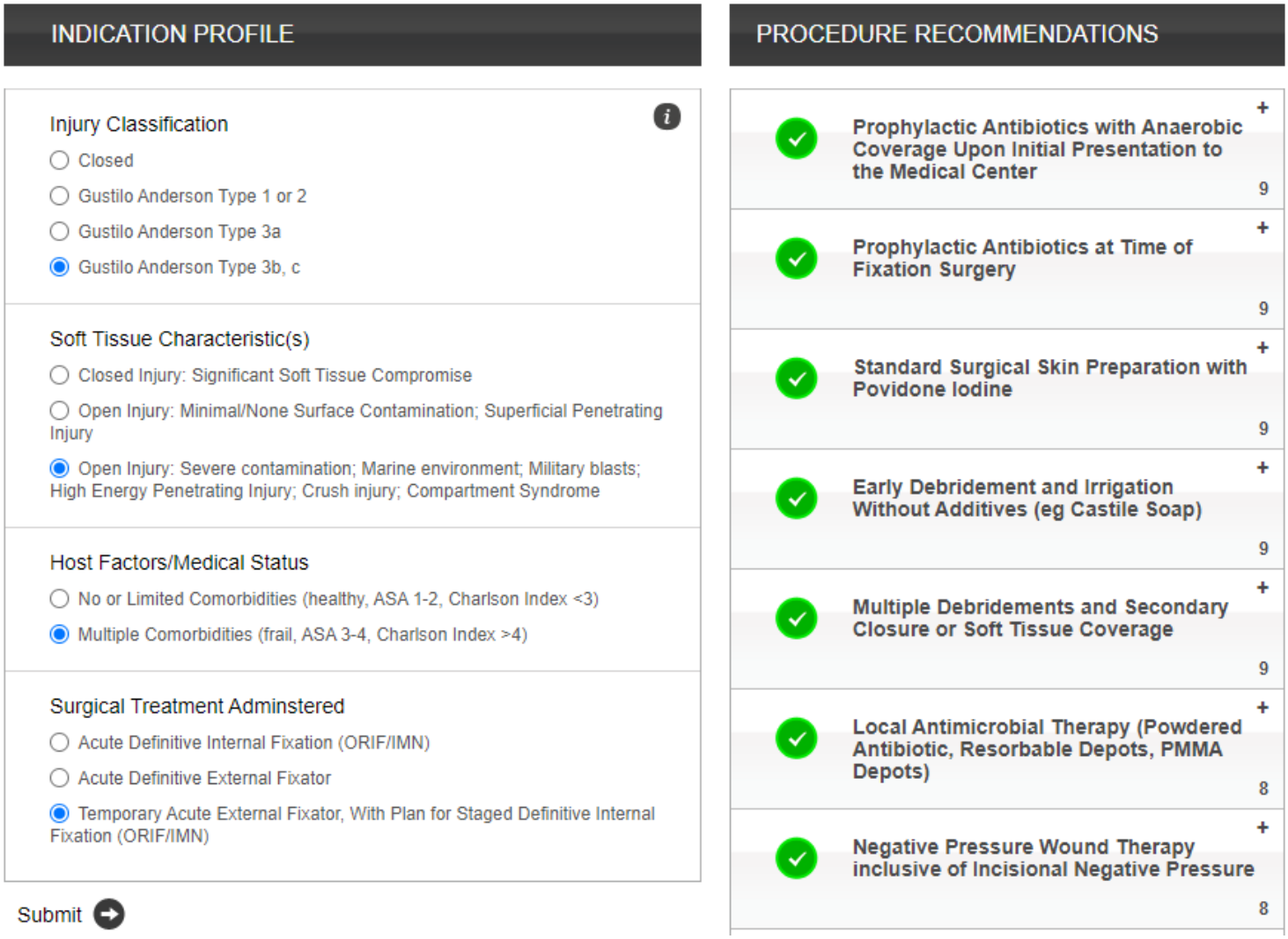
TREATMENTS

1. Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center
2. Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center
3. Prophylactic Antibiotics at Time of Fixation Surgery
4. Standard Surgical Skin Preparation with Povidone Iodine
5. Standard Surgical Skin Preparation with Chlorhexidine
6. Early Debridement and Irrigation Without Additives (e.g., Castile Soap)
7. Debridement and Primary Closure or Soft Tissue Coverage
8. Multiple Debridements and Secondary Closure or Soft Tissue Coverage
9. Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)
10. Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure
11. Peri-Operative Normothermia
12. Peri-Operative Glucose Control
13. Supplemental Peri-Operative Oxygenation
14. Change Gloves At Regular Intervals

III. RESULTS OF APPROPRIATENESS RATINGS

For a user-friendly version of these appropriate use criteria, please access our AUC web-based application at www.orthoguidelines.org/auc. The OrthoGuidelines native app can also be downloaded via the Apple or Google Play stores.

Web-Based AUC Application Screenshot



RESULTS

The following Appropriate Use Criteria tables contain the final appropriateness ratings assigned by the members of the voting panel. Patient characteristics are found under the column titled "Scenario". The Appropriate Use Criteria for each patient scenario can be found within each of the treatment rows. These criteria are formatted by appropriateness, median rating, and + or - indicating agreement or disagreement amongst the voting panel, respectively.

Out of 588 total voting items, 475 (81%) voting items were rated as "Appropriate", 68 (12%) voting items were rated as "May Be Appropriate", and 45 (8%) voting items were rated as "Rarely Appropriate" (Figure 5). Additionally, the voting panel members were in statistical agreement on 399 (68%) voting items and statistical disagreement on 21 (4%) voting items (Figure 6).

FIGURE 5. BREAKDOWN OF APPROPRIATENESS RATINGS

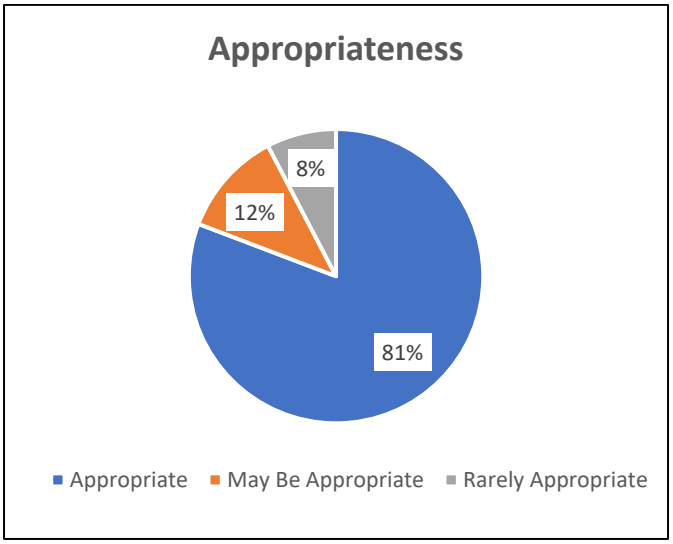


FIGURE 6. BREAKDOWN OF AGREEMENT AMONGST VOTING PANEL

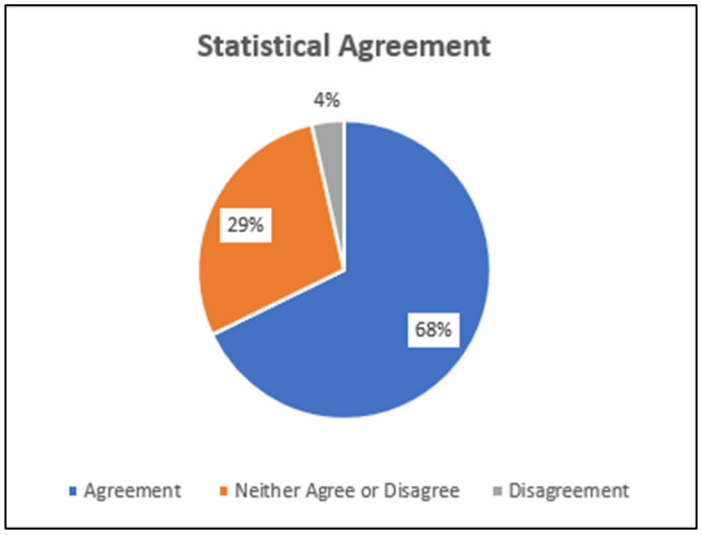
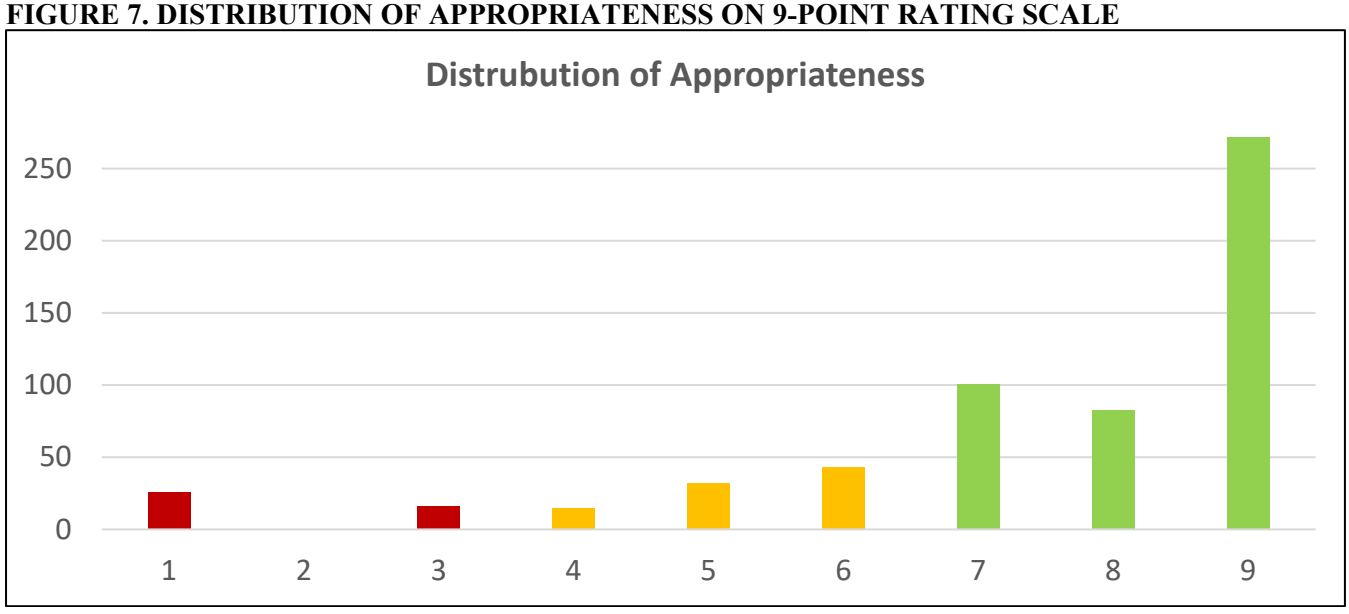


FIGURE 7. DISTRIBUTION OF APPROPRIATENESS ON 9-POINT RATING SCALE



APPROPRIATENESS RATINGS BY PATIENT SCENARIO

Interpreting the AUC tables:

- Each procedure contains the appropriateness (i.e., appropriate, may be appropriate, or rarely appropriate) for each patient scenario, followed by the median panel rating, and the panel's agreement in parentheses.

Patient Indications	Treatment	Appropriateness Rating
Scenario 1: Closed, Closed Injury: Significant Soft Tissue Compromise, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (-)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate (-)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 2: Closed, Closed Injury: Significant Soft Tissue Compromise, No or Limited Comorbidities	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)

(healthy, ASA 1-2, Charlson Index, Acute Definitive External Fixator	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Rarely Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Rarely Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 3: Closed, Closed Injury: Significant Soft Tissue Compromise, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index, Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate (+)

	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Rarely Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 4: Closed, Closed Injury: Significant Soft Tissue Compromise, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (-)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**

Scenario 5: Closed, Closed Injury: Significant Soft Tissue Compromise, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Rarely Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Rarely Appropriate (-)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 6: Closed, Closed Injury: Significant Soft Tissue Compromise, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Rarely Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate

	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Rarely Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Rarely Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Rarely Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 7: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate

Patient Indications	Treatment	Appropriateness Rating
Scenario 8: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 9: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)

	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 10: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (eg Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate

	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 11: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate (+)
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 12: Gustilo Anderson Type 1 or 2, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Rarely Appropriate
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (eg Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	May Be Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 13: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 14: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (eg Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate (-)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 15: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate (-)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 16: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 17: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (eg Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 18: Gustilo Anderson Type 1 or 2, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 19: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 20: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixation	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (eg Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 21: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	May Be Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 22: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 23: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate (+)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 24: Gustilo Anderson Type 3a, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	May Be Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 25: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3) Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 26: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 27: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 28: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 29: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 30: Gustilo Anderson Type 3a, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 31: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 32: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate (-)
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 33: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 34: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 35: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 36: Gustilo Anderson Type 3b, c, Open Injury: Minimal/None Surface Contamination; Superficial Penetrating Injury, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 37: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 38: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 39: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, No or Limited Comorbidities (healthy, ASA 1-2, Charlson Index <3), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 40: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)

	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 41: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Acute Definitive External Fixator	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate
	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	Rarely Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)
Patient Indications	**Treatment**	**Appropriateness Rating**
Scenario 42: Gustilo Anderson Type 3b, c, Open Injury: Severe contamination; Marine environment; Military blasts; High Energy Penetrating Injury; Crush injury; Compartment Syndrome, Multiple Comorbidities (frail, ASA 3-4, Charlson Index >4), Temporary Acute External Fixator, With Plan for Staged Definitive Internal Fixation (ORIF/IMN)	Prophylactic Antibiotics without Anaerobic Coverage Upon Initial Presentation to the Medical Center	May Be Appropriate (-)
	Prophylactic Antibiotics with Anaerobic Coverage Upon Initial Presentation to the Medical Center	Appropriate (+)
	Prophylactic Antibiotics at Time of Fixation Surgery	Appropriate (+)
	Standard Surgical Skin Preparation with Povidone Iodine	Appropriate (+)
	Standard Surgical Skin Preparation with Chlorhexidine	Appropriate

	Early Debridement and Irrigation Without Additives (e.g., Castile Soap)	Appropriate (+)
	Debridement and Primary Closure or Soft Tissue Coverage	May Be Appropriate
	Multiple Debridements and Secondary Closure or Soft Tissue Coverage	Appropriate (+)
	Local Antimicrobial Therapy (Powdered Antibiotic, Resorbable Depots, PMMA Depots)	Appropriate (+)
	Negative Pressure Wound Therapy inclusive of Incisional Negative Pressure	Appropriate (+)
	Peri-Operative Normothermia	Appropriate (+)
	Peri-Operative Glucose Control	Appropriate (+)
	Supplemental Peri-Operative Oxygenation	Appropriate (+)
	Change Gloves At Regular Intervals	Appropriate (+)

IV. APPENDICES

APPENDIX A. DOCUMENTATION OF APPROVAL

AAOS BODIES THAT APPROVED THIS APPROPRIATE USE CRITERIA

Evidence-Based Quality and Value Committee: Approved on 02/16/2022
The AAOS Committee on Evidence Based Quality and Value consists of 23 AAOS members. The overall purpose of this committee is to plan, organize, direct, and evaluate initiatives related to Clinical Practice Guidelines, Appropriate Use Criteria, and Quality Measures.

Council on Research and Quality: Approved on 02/16/2022
To enhance the mission of the AAOS, the Council on Research and Quality promotes the most ethically and scientifically sound basic, clinical, and translational research possible to ensure the future care for patients with musculoskeletal disorders. The Council also serves as the primary resource to educate its members, the public, and public policy makers regarding evidenced-based medical practice, orthopaedic devices and biologics regulatory pathways and standards development, patient safety, and other related areas of importance.

Board of Directors: Approved on 03/21/2022
The 16 member AAOS Board of Directors manages the affairs of the AAOS, sets policy, and determines and continually reassesses the Strategic Plan.

APPENDIX B. DISCLOSURE INFORMATION

SSI WRITING PANEL MEMBER DISCLOSURES

Ashton Goldman, MD
This individual reported nothing to disclose.

Kevin Tetsworth, MD
4Web Medical: Paid presenter or speaker ($0) Number of Presentations: 0
Australasian Limb Lengthening and Reconstruction Society (President): Board or committee member ($0)
BioConsultancy Pty Ltd: Stock or stock Options Number of Shares: 0
Extremos Medical: Unpaid consultant
Journal of Limb Lengthening and Reconstruction: Editorial or governing board ($0)
LifeHealthcare: Paid presenter or speaker ($0) Number of Presentations: 0
Smith & Nephew: Paid presenter or speaker ($0) Number of Presentations: 0
Smith & Nephew: Paid consultant ($0)
Stryker: Paid presenter or speaker ($0) Number of Presentations: 0
Stryker: Paid consultant ($0)

Aidin Eslam Pour, MD, FAAOS
This individual reported nothing to disclose

Eric Thomas Ricchetti, MD, FAAOS
AAOS: Board or committee member ($0)
American Board of Orthopaedic Surgery, Inc.: Board or committee member ($0)
American Shoulder and Elbow Surgeons: Board or committee member ($0)
DJ Orthopaedics: IP royalties ($0)
DJ Orthopaedics: Paid presenter or speaker ($0) Number of Presentations: 0
DJ Orthopaedics: Paid consultant ($0)
Journal of Shoulder and Elbow Surgery: Editorial or governing board ($0) Seminars in Arthroplasty(Self)

Ryan Harrison, MD, FAAOS
AAOS: Board or committee member ($0)
Orthopaedic Trauma Association: Board or committee member ($0)

Robin Patel, MD
Accelerate Diagnostics: Research support ($0)
Allergan: Research support ($0) N/A(Self)
American Society of Microbiology: Board or committee member ($0)
CD Diagnostics: Research support ($0) Research grant(Self)
Clinical Infectious Diseases: Editorial or governing board ($0)
ContraFect: Research support ($0) N/A(Self)
Curetis: Research support ($0)
HBMS: Research support ($0)
Infectious Diseases Board Review (Faculty): Board or committee member ($0)
Journal of Clinical Microbiology: Editorial or governing board ($0)

Mayo Clinic, Rochester MN (my employer): Employee ($0)
Merck: Research support ($0) N/A(Self)
Shionogi: Research support ($0) N/A(Self)
Up-to-Date: Editorial or governing board ($50) Royalties(Self)
USMLE: Board or committee member ($0)

Kali R Tileston, MD, FAAOS
American Academy of Pediatrics: Board or committee member ($0)
Pediatric Orthopaedic Society of North America: Board or committee member ($0)
Ruth Jackson Orthopaedic Society: Board or committee member ($0) Committee member(Self)

Christopher Edward Gross, MD, FAAOS
American Orthopaedic Foot and Ankle Society: Board or committee member ($0) Committee member(Self)
Medshape: Paid consultant ($0) n/a(Self)
Wright Medical Technology, Inc.: Research support ($0)

Gregory John Della Rocca, MD, FACS, PhD, FAAOS
AAOS: Board or committee member ($0)
American College of Surgeons: Board or committee member ($0)
American Orthopaedic Association: Board or committee member ($0) N/A(Self)
AOTrauma: Board or committee member ($0) Committee member(Self)
Geriatric Orthopaedic Surgery and Rehabilitation: Editorial or governing board ($0) N/A(Self)
Journal of Orthopaedic Trauma: Editorial or governing board ($0) n/a(Self)
Mergenet: Stock or stock Options Number of Shares: 14,500 N/A(Self)
Orthopaedic Trauma Association: Board or committee member ($0)
The Orthopaedic Implant Company: Stock or stock Options Number of Shares: 25,000 N/A(Self)
Wright Medical Technology, Inc.: IP royalties ($1,100) N/A(Self)

Utku Kandemir, MD, FAAOS
AO North America: Paid presenter or speaker ($0) Number of Presentations: 0
DePuy, A Johnson & Johnson Company: Paid presenter or speaker ($0) Number of Presentations: 0
Orthopaedic Trauma Association: Board or committee member ($0) Education Committee Member(Self)
Stryker: Paid presenter or speaker ($0) Number of Presentations: 0

William T. Obremskey, MD, MPH, FAAOS
Journal of Bone and Joint Surgery - American: Editorial or governing board ($0) Reviewer(Self)
Journal of Orthopaedic Trauma: Editorial or governing board ($0) reviewer(Self)
Journal of the American Academy of Orthopaedic Surgeons: Editorial or governing board ($0) Reviewer(Self)
Southeastern Fracture Consortium: Board or committee member ($0) N/A(Self)

Manjari Joshi, MBBS
IDCP: Editorial or governing board ($0)

Robert O'Toole, MD
Coorstek: Paid consultant
Imagen: Paid consultant; Stock or stock Options

lincotek (formerly Coorstek): IP royalties
Smith & Nephew: Paid consultant
Zimmer: Paid presenter or speaker

Renan C Castillo, PhD
This individual reported nothing to disclose

SSI VOTING PANEL MEMBER DISCLOSURES

Nicholas S Tedesco, DO, FAAOS
Medscape: Publishing royalties, financial or material support ($350) One time solicited publication payment (Self)
RomTech, Inc.: Stock or stock Options Number of Shares: 81,250 Private stock (Self)
03/13/2021

Jared Huston, MD
Molecular Medicine: Editorial or governing board ($0)
Surgical Infection Society: Board or committee member ($0)
Charles A Reitman, MD, FAAOS Submitted on: 02/23/2021
Clinical Orthopaedics and Related Research: Editorial or governing board ($5,000) The money goes to the institution (Self)
North American Spine Society: Board or committee member ($0) (Self)
03/09/2021

Charles A Reitman, MD, FAAOS
Clinical Orthopaedics and Related Research: Editorial or governing board ($5,000) The money goes to the institution (Self)
North American Spine Society: Board or committee member ($0) (Self)
02/23/2021

Christopher Hunt Renninger, MD
This individual reported nothing to disclose
02/28/2021

Vinay Aggarwal, MD
This individual reported nothing to disclose
02/26/2021

Amy Kathryn Steinhoff, MD, FAAOS
This individual reported nothing to disclose
02/23/2021

Wendy W Wong, MD, FAAOS
AAOS: Board or committee member ($0) Knee committee member (Self)
California Medical Association: Board or committee member ($0) Young Physician Section member(Self)
GLG: Paid consultant ($1,500) One time consulting(Self)
Ruth Jackson Orthopaedic Society: Board or committee member ($0) Mentoring committee member(Self)
02/23/2021

Jason Strelzow, MD, FAAOS
Acumed, LLC: Paid presenter or speaker ($1,500) Number of Presentations: 3 N/A(Self)
Acumed, LLC: Paid consultant ($5,000) N?A(Self)
American Society for Surgery of the Hand: Board or committee member ($0) N/A(Self)
BoneSupport: Paid consultant ($2,000) BoneSupport(Self)

Journal of Hand Surgery - American: Editorial or governing board ($0) N/A(Self)
Orthopaedic Trauma Association: Board or committee member ($0) N/A(Self)
Stryker: Other financial or material support ($300) N/A(Self)
02/08/2021

Michael Patrick Leslie, DO, FAAOS
DePuy, A Johnson & Johnson Company: Paid consultant ($0)
Globus Medical: Paid consultant ($0)
Clay A Spitler, MD, FAAOS Submitted on: 02/13/2021
AAOS: Board or committee member ($0)
AO Trauma: Paid presenter or speaker ($3,100) Number of Presentations: 2 AO Trauma(Self)
DePuy, A Johnson & Johnson Company: Paid consultant ($3,000) Consultant(Self)
Journal of Bone and Joint Surgery - American: Editorial or governing board ($6,000) Clinical Classroom Trauma
Section Head(Self)
KCI: Paid consultant ($400) n/a(Self)
Orthopaedic Trauma Association: Board or committee member ($0)
ROM 3 Rehab LLC: Stock or stock Options Number of Shares: 100 ROM 3 Rehab LLC(Self)
02/24/2021

Julie E Adams, MD, FAAOS
American Association for Hand Surgery: Board or committee member ($0) (Self) Parlimentarian; bylaws committee
American Shoulder and Elbow Surgeons: Board or committee member ($0) (Family) Committee membership
American Society for Surgery of the Hand: Board or committee member ($0) (Self & Family) Committee membership
Arthrex, Inc: IP royalties ($0)
Arthrex, Inc: Paid consultant ($0)
Biomet: IP royalties ($0)
Journal of Hand Surgery - American: Editorial or governing board ($0) (Self & Family)
Sonex: Paid consultant ($2,000) N/A(Self)
Zimmer: IP royalties ($0)
02/10/2021

Elie Berbari, MD
UpToDate: Publishing royalties, financial or material support ($0)
Report: CUS7850
03/01/2021

Jeannie Huh, MD, FAAOS
American Orthopaedic Foot and Ankle Society: Board or committee member ($0)
Report: CUS7850
03/08/2021

Michael J Bosse, MD, FAAOS
Orthopaedic Implant Company: Stock or stock Options Number of Shares: 0
04/02/2021

Michael John Weaver, MD, FAAOS, FACS
Osteocentric: IP royalties ($0)
Report: CUS7850
04/08/2021

Reza Firoozabadi, MD, FAAOS
AO North America Teaching Honorarium: Paid presenter or speaker ($0) Number of Presentations: 0
Innomed: IP royalties ($0)
Orthopaedic Trauma Association: Board or committee member ($0)
Smith & Nephew: Paid consultant ($0)
04/01/2021

Arun Aneja, MD, PhD
AAOS: Board or committee member ($0)
Report: CUS7850
04/05/2021

Lauren Maccormick Tatman, MD
(This individual reported nothing to disclose)
04/04/2021

APPENDIX C. REFERENCES

1. Fitch K, Bernstein SJ, Aguilar MD et al. *The RAND/UCLA Appropriateness Method User's Manual*. Santa Monica, CA: RAND Corporation; 2001.
2. Meling T, Harboe K, Søreide K. Incidence of traumatic long-bone fractures requiring in-hospital management: a prospective age- and gender-specific analysis of 4890 fractures. *Injury*. 2009;40(11):1212-1219. doi:10.1016/j.injury.2009.06.003
3. Court-Brown CM, Rimmer S, Prakash U, McQueen MM. The epidemiology of open long bone fractures. *Injury*. 1998;29(7):529-534. doi:10.1016/s0020-1383(98)00125-9
4. HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). 2013. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/nisoverview.jsp
5. Webster JB. Lower Limb Amputation Care Across the Active Duty Military and Veteran Populations. *Phys Med Rehabil Clin N Am*. 2019;30(1):89-109. doi:10.1016/j.pmr.2018.08.008
6. Ziegler-Graham K, MacKenzie EJ, Ephraim PL, Travison TG, Brookmeyer R. Estimating the prevalence of limb loss in the United States: 2005 to 2050. *Arch Phys Med Rehabil*. 2008;89(3):422-429. doi:10.1016/j.apmr.2007.11.005

AAOS METRC Prevention of Surgical Site Infection Clinical Practice Guideline

1. American Academy of Orthopaedic Surgeons. Systematic Literature Review on the Prevention of Surgical Site Infection After Major Extremity Trauma. https://www.aaos.org/metrcdod/. Published xx/xx/xxxx.

APPENDIX D: EXTERNAL ENDORSEMENTS

From:	Anna Quintanilla
To:	Krause, Barbara
Subject:	RE: AAOS/METRC Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma Endorsement Request
Date:	Friday, April 22, 2022 11:27:16 AM
Attachments:	image002.png image003.png image004.png

Caution - External

Hi Barb,

You can use this letter and yes, we are endorsing both.

Thanks again,

Anna

Anna K. Quintanilla, MA, CAE
Executive Director

American Shoulder and Elbow Surgeons
1515 East Woodfield Rd., Suite 345
Schaumburg, IL 60173
Phone: 847- 957-1373| Fax: 847-268-9499
aquintanilla@ases-assn.org
www.ases-assn.org



From: Anna Quintanilla <aquintanilla@ases-assn.org>
Sent: Friday, April 22, 2022 10:48 AM
To: Krause, Barbara <krause@aaos.org>
Subject: RE: AAOS/METRC Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma Endorsement Request

Caution - External

Hello Barb,

ASES will formally endorse the CPG. Thank you for this opportunity.

All the best,

Anna K. Quintanilla, MA, CAE
Executive Director

American Shoulder and Elbow Surgeons
1515 East Woodfield Rd., Suite 345
Schaumburg, IL 60173
Phone: 847- 957-1373| Fax: 847-268-9499
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POSNA
PEDIATRIC ORTHOPAEDIC SOCIETY OF NORTH AMERICA

April 27, 2022

Kaitlyn S. Sevarino, MBA, CAE
Director,
Department of Clinical Quality and Value
American Academy of Orthopaedic Surgeons

Dear Ms. Sevarino,

The Pediatric Orthopaedic Society of North America (POSNA) agrees to endorse the AAOS Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma. This endorsement implies permission for the AAOS to officially list our organization as an endorser of this clinical practice guideline and reprint our logo in the introductory section of the clinical practice guideline review document.

Sincerely,

Teri Stech
Executive Director

1 Tower Lane, Suite 2410
Oakbrook Terrace, IL 60181

(630) 478-0480 posna@posna.org posna.org orthokids.org

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May 11, 2022

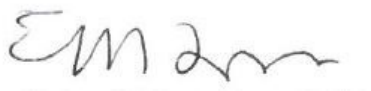
Kaitlyn S. Sevarino, MBA, CAE
Director, Department of Clinical Quality and Value
AAOS
9400 W. Higgins Road
Rosemont, IL 60018

Dear Ms. Sevarino,

The American Orthopaedic Foot & Ankle Society Board of Directors has voted to endorse both the AAOS Clinical Practice Guideline for the Prevention of Surgical Site Infections After Major Extremity Trauma and the AAOS Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma. These endorsements imply permission for the AAOS to officially list our organization as an endorser of these documents and reprint our logo in the introductory section of each document.

Please send us the updated CPG and AUC when AOFAS logo has been included and we will share the documents with our membership. Thank you for the opportunity to provide volunteers to contribute to this work and for the society to endorse the work products.

Sincerely,



Elaine M. Leighton, MPH, CAE
Executive Director

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PO Box 1278
East Northport, NY 11731
Tel: (631) 368-1880
Fax: (631) 368-4466
LHydo@aol.com

May 26, 2022

Kaitlyn S. Sevarino, MBA, CAE
Director
Department of Clinical Quality and Value

Dear Ms. Sevarino,

The Surgical Infection Society (SIS) has voted to endorse the AAOS Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma. This endorsement implies permission for the AOS to officially list our organization as an endorser of this clinical practice guideline and reprint our logo in the introductory section of the clinical practice guideline review document.

Sincerely,



Lynn J. Hydo, MBA, FCCM
Executive Director, SIS

Krause, Barbara

From: Demisashi, Genet <gdemisashi@idsociety.org>
Sent: Thursday, July 7, 2022 12:28 PM
To: Krause, Barbara
Subject: RE: AAOS/METRC Clinical Practice Guideline for the Prevention of Surgical Site Infections After Major Extremity Trauma Endorsement Request

Follow Up Flag: Follow up
Flag Status: Completed

Caution - External

Hi Barbara,

IDSA has officially endorsed the AUC and Guideline. We provided the following comments for consideration (see below).

Thanks,
Genet

From: Demisashi, Genet
Sent: Wednesday, June 15, 2022 3:09 PM
To: Krause, Barbara <krause@aaos.org>
Subject: RE: AAOS/METRC Clinical Practice Guideline for the Prevention of Surgical Site Infections After Major Extremity Trauma Endorsement Request

Hi Barbara,

I am passing some comments for consideration. It's still with our Board for final approval. Thanks, Genet

- A minor point, but a final review for grammar errors is warranted… as an example, under pre-operative antibiotics in the CPG document, page 23/70 "If each subgroup deep and superficial infections) is individually compared, the decrease was not significant."
- Most of the GL refers to surgical processes of care but there are specific recommendations referring to appropriate antimicrobials. For perioperative ABX the GL recommends cefazolin or clinda, except for Type III (possible II) open fractures, for which additional gram-negative coverage is preferred. The GL does not include a specific 'gram-negative' ABX in the Initial Recommendation but does indicate pip/tazo is preferred in the text of 'Rationale'. It would be helpful to the user to list this in the initial recommendation (and provide alternatives).
- A major principle of approp ABX use is duration of therapy. Unfortunately there is not an official recommendation for duration. In the text under 'Rational' there are reviews of several studies that have different durations of therapy included. Again it would be helpful for the user to have better guidance on appropriate duration of therapy. Unnecessary prolonged duration is an issue.
- VERY LONG
- Page 9:
    - Preoperative transfusion, intraoperative evaluation by a vascular service in patients with grade 3a, 3b open fractures with well perfused limbs, and preoperative MRSA positivity ~~has~~ have not been shown to alter the risk of postoperative infection. This is a list of 3 items (transfusion, evaluation by a vascular surgeon, and MRSA positivity) that have been evaluated in 3 separate studies. Not the combination of all 3 in a single patient.

ORTHOPAEDIC TRAUMA ASSOCIATION

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Orthopaedic Trauma Association
Education ▪ Research ▪ Advocacy
9400 W. Higgins Road, Suite 305, Rosemont, IL 60018-4975
Phone: (847) 698-1631 ▪ www.ota.org ▪ OTA@ota.org

May 9, 2022

Kaitlyn S. Sevarino, MBA, CAE
Director
Department of Clinical Quality and Value

Dear Ms. Sevarino,

The EBQVS Committee and OTA Board of Directors have voted to endorse the AAOS Appropriate Use Criteria for the Prevention of Surgical Site Infections After Major Extremity Trauma. This endorsement implies permission for the AAOS to officially list our organization as an endorser of this clinical practice guideline and reprint our logo in the introductory section of the clinical practice guideline review document.

Sincerely,



Michael Archdeacon, MD
OTA President