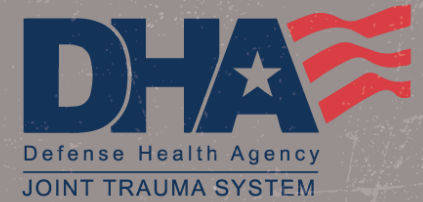




**COMBAT MEDIC/
CORPSMAN**



TACTICAL COMBAT CASUALTY CARE COURSE

MODULE 16: ANTIBIOTIC ADMINISTRATION



Committee on
Tactical Combat
Casualty Care
(CoTCCC)

TCCC TIER 1
All Service Members

TCCC TIER 2
Combat Lifesaver

TCCC TIER 3
Combat Medic/Corpsman

TCCC TIER 4
Combat Paramedic/Provider

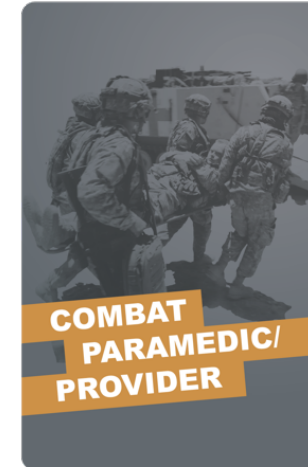
TACTICAL COMBAT CASUALTY CARE (TCCC) ROLE-BASED TRAINING SPECTRUM

ROLE 1 CARE

**NONMEDICAL
PERSONNEL**



**MEDICAL
PERSONNEL**



◀ **YOU ARE HERE**

STANDARDIZED JOINT CURRICULUM

1 x **TERMINAL LEARNING OBJECTIVES**

19 Given a combat or noncombat scenario, perform antibiotic administration during Tactical Field Care in accordance with CoTCCC Guidelines.

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- **19.1** Identify the evidence and considerations for early antibiotic administration in Tactical Field Care.
 - **19.2** Identify the indications, contraindications, and administration methods of antibiotics in Tactical Field Care.
 - **19.3** Describe the indications, contraindications, dosage, route, and administration methods of moxifloxacin in Tactical Field Care.
 - **19.4** Describe the indications, contraindications, dosage, route, and administration methods of ertapenem in Tactical Field Care.
 - **19.5** Demonstrate the preparation and administration of CoTCCC-recommended antibiotics in Tactical Field Care.

05 x **ENABLING LEARNING OBJECTIVES**

MARCH PAWS

LIFE-THREATENING

- M** MASSIVE BLEEDING
#1 Priority
- A** AIRWAY
- R** RESPIRATION (*Breathing*)
- C** CIRCULATION
- H** HYPOTHERMIA / HEAD INJURIES

AFTER LIFE-THREATENING

- P** PAIN
- A** ANTIBIOTICS
- W** WOUNDS
- S** SPLINTING



THE IMPORTANCE OF EARLY ANTIBIOTIC ADMINISTRATION

1944

WWII

Penicillin administered at front line surgical units saved lives

**1950/
60s**

Korea & Vietnam

Recommended battlefield antibiotics for any delays in evacuation to hospitals

1993

Battle of Mogadishu (1993)

16/58 casualties' wounds infected with 15-hour delay to treatment

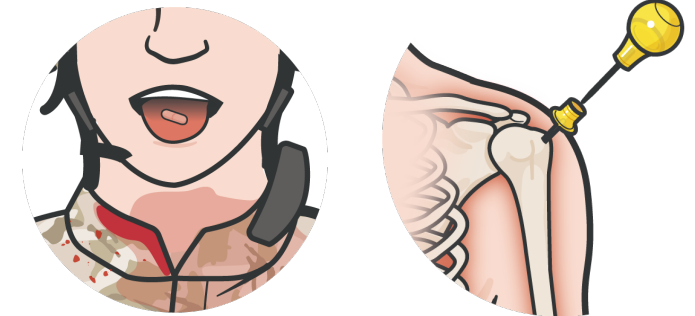
1996

Initial TCCC Guidelines recommend battlefield antibiotics

2003

Battle of Iraq – road to Baghdad (2003)

32 casualties treated in battlefield had negligible infections despite 11-hour evac delay



Antibiotics must be given as soon as possible after injury to maximize their ability to prevent wound infections

2007 review of TCCC noted no reports of adverse effects from the use of battlefield antibiotics during GWOT operations

INDICATIONS AND CONTRAINDICATIONS TO ANTIBIOTICS IN TFC

Antibiotics are indicated in all with **open combat wounds**, regardless of the mechanism of injury



Open Fractures

Burns (with penetrating trauma)

Amputations

Eye Injuries

Bleeding

Choosing the best antibiotics

- Effectiveness across a broad range of pathogens
- Minimal side effects
- Environmental stability
- Simple and infrequent dosage regimens
- Comparatively low cost



Oral - Moxifloxacin
Parenteral - Ertapenem

Very good safety profile of oral and parenteral antibiotics on the battlefield

Only contraindication is a known drug allergy



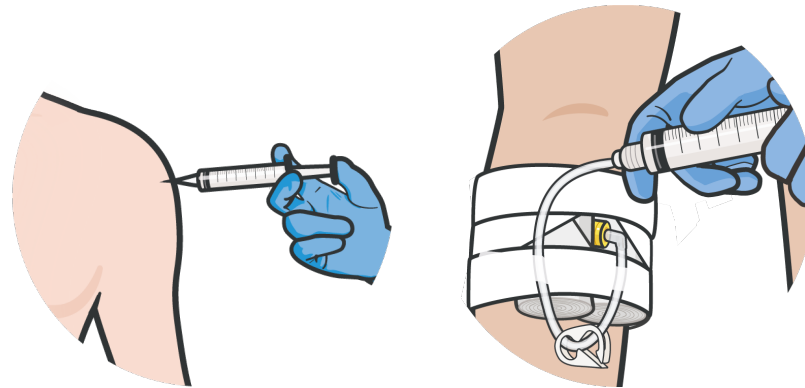
METHODS OF ADMINISTRATION OF ANTIBIOTICS IN TFC

The two methods of **administering antibiotics** in the tactical setting:

By mouth



By parenteral injection
(intramuscular, intravenous or intraosseous)



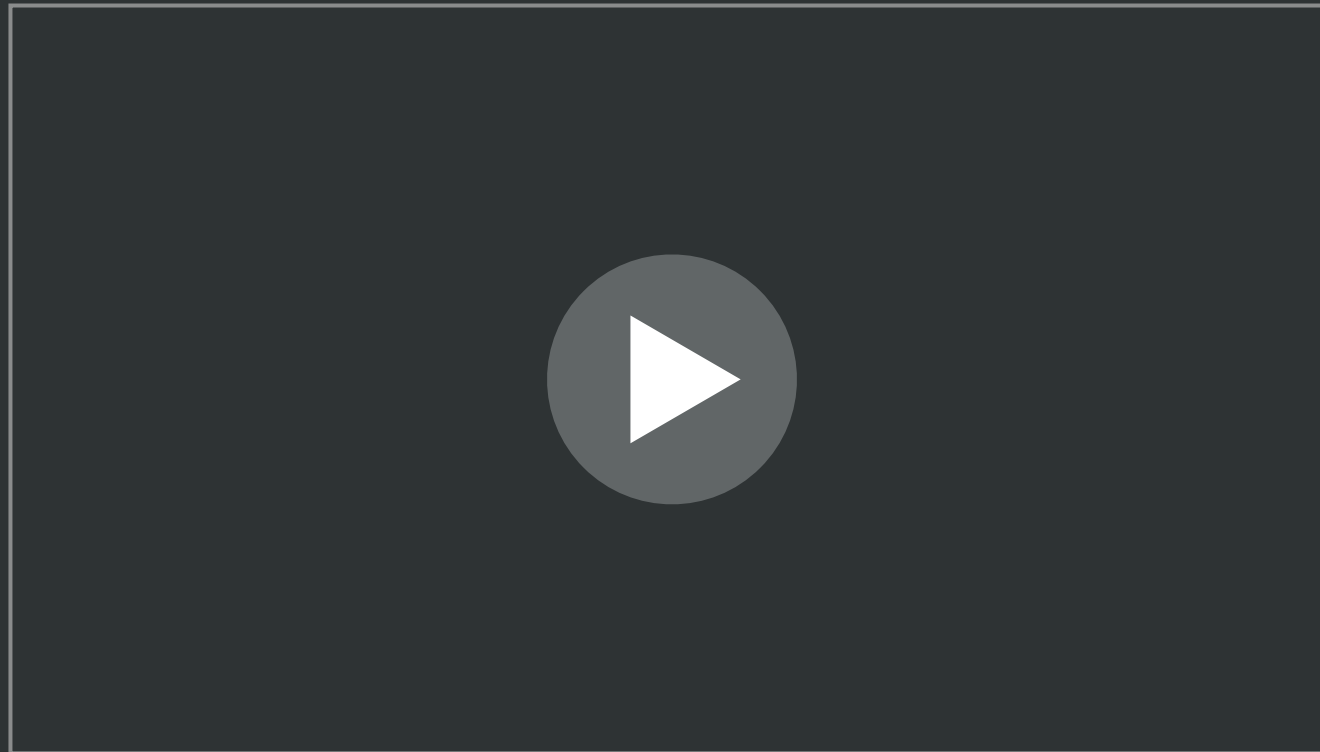
Oral route preferred because

- Fewer supplies to carry
- No reconstitution needed
- Saves resources and time spent injecting or infusing parenteral medications

Parenteral administration required if:

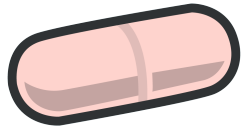
- Unconscious
- Cannot swallow
- In shock

ANTIBIOTIC ADMINISTRATION OVERVIEW



Video can be found on deployedmedicine.com

MOXIFLOXACIN ADMINISTRATION



DOSAGE(S):

- 400 mg 1 daily



Document time of administration on casualty DD Form 1380

ROUTE(S):

- Moxifloxacin is available in PO form*

INDICATIONS:

- Recommended for all open combat wounds if able to take PO meds

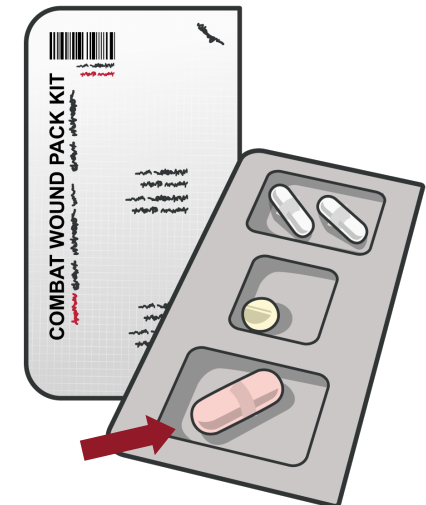
CONTRAINDICATIONS:

- Fluoroquinolone allergy

POTENTIAL SIDE EFFECTS:

- Dizziness, headache, peripheral neuropathy, nausea, diarrhea, abdominal pain, vomiting, taste perversion, abnormal LFTs, dyspepsia, and tendon rupture

Standard moxifloxacin dose is in the Combat Wound Medication Pack (CWMP)



MOXIFLOXACIN ADMINISTRATION (Cont.)

DRUG INTERACTIONS:

Iron, zinc, antacids, aluminum, magnesium, calcium, and sucralfate decrease absorption, atenolol, cisapride, erythromycin, antipsychotics, TCAs, quinidine, procainamide, amiodarone, sotalol may prolong QTc interval, may cause false positive on opiate screening tests

ONSET/PEAK/DURATION:

1 hr/2 hr/20-24 hr



Know unit members' allergies prior to deployment and determine alternate antibiotics with medical officer, as needed

TACTICAL CONSIDERATIONS:

- Use the moxifloxacin from the casualty's own Combat Wound Medication Pack
- Minimal to no mission impact

ADVANTAGES:

- Excellent intraocular penetration when taken systemically
- Effective for most gram-positive and gram-negative bacteria; ideal for treatment of eye injuries

ERTAPENEM ADMINISTRATION

DOSAGE(S):

- **1g** every 24 hours



Document time
of administration on
casualty
DD Form 1380

ROUTE(S):

- *Ertapenem is available in IV, IO, or IM form*

INDICATIONS:

- Recommended for all open combat wounds if unable to take PO meds

CONTRAINDICATIONS:

- Beta-lactam allergy (penicillin, cephalosporins) or lidocaine (for IM injections)

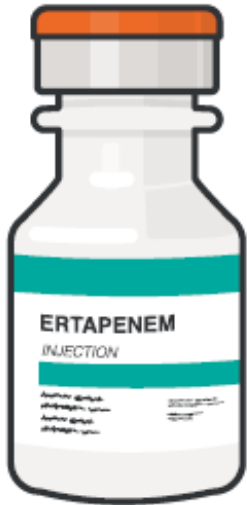
POTENTIAL SIDE EFFECTS:

Injection site phlebitis or thrombosis, asthenia, fatigue, death, fever, leg pain, anxiety, altered mental status, dizziness, headache, insomnia, chest pain, hypo- or hypertension, tachycardia, edema, abdominal pain, diarrhea, acid reflux, constipation, dyspepsia, nausea, vomiting, increased LFTs, cough, dyspnea, pharyngitis, rales, rhonchi, respiratory distress, erythema, pruritus, and rash.



Know unit members' allergies prior to deployment and determine alternate antibiotics with medical officer, as needed

ERTAPENEM ADMINISTRATION (Cont.)



DRUG INTERACTIONS:

- Probenecid decreases renal excretion

ONSET/PEAK/DURATION:

- 30 sec-5 min/30 min-2 hr/24hr

TACTICAL CONSIDERATIONS:

- For **IV** reconstitute with 10 ml NS – don't mix with dextrose or infuse with other meds
- For **IM** reconstitute 3.2ml of 1% lidocaine (without epinephrine)

ADVANTAGES:

Parenteral antibiotic of choice based on:

- Once-a-day dosing
- Excellent broad-spectrum coverage
- Good safety profile

SKILL STATION

Antibiotic Administration



Demonstrate administration of
moxifloxacin and ertapenem

SUMMARY

- The importance of early antibiotic administration
- General indications and methods of antibiotic administration
- Indications and considerations for administering moxifloxacin
- Indications and considerations for administering ertapenem
- Demonstration of the preparation and administration of antibiotics

CHECK ON LEARNING



What is the oral antibiotic of choice and its dose?



When should you use ertapenem instead of moxifloxacin as an antibiotic therapy?



What are the advantages of using an oral antibiotic over a parenteral antibiotic?

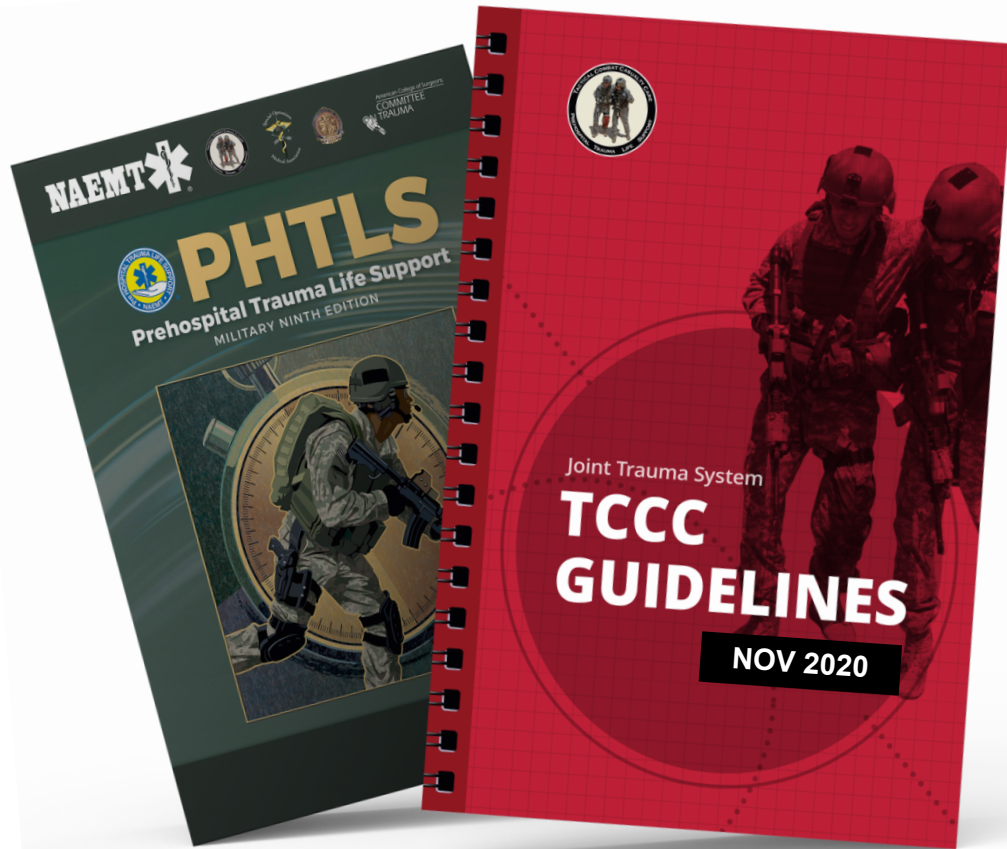


When should you administer antibiotics in the Tactical Field Care phase?



ANY QUESTIONS?

REFERENCES



TCCC: Guidelines

by JTS/CoTCCC

Updated regularly – latest edition dated
5 November 2020

These guidelines are the result of decisions made by the Committee on Tactical Combat Casualty Care as they explore evidence-based research regarding best practices

PHTLS: Military Edition, Chapter 25

by NAEMT

**Prehospital Trauma Life Support,
Military Ninth Edition**