JOINT TRAUMA SYSTEM CLINICAL PRACTICE GUIDELINE (JTS CPG)

Infection Prevention in Combat-related Injuries (CPG ID:24)

Provides rationale and guidance for the prevention of infection after combat-related injuries.

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SUMMARY OF CHANGES

1. New references have been added based on new data from the *Trauma Infectious Disease Outcomes Study* supporting previous recommendations to limit gram negative therapy for prophylaxis of extremity wounds.
2. The duration of antibiotics for open fractures has been curtailed to only the first 24 hours and re-dosing with subsequent irrigation and debridement.
3. Clarification had been added to describe the cohorting of patients. Long term patients (>72 hours) had been clarified to mean host nation patients; short term (<72 hours) has been clarified to mean U.S. personnel.
4. Antimicrobial stewardship recommendations have been expanded to include the recommendation for facilities responsible for trauma care to monitor adherence to antimicrobial prophylaxis regimens.
5. Reach back information has been updated to include the ADvanced VIrtual Support for OpeRational forces (AD.VI.S.OR) network and to the updated Army Infection Control email address.
6. Vancomycin dosing has been updated to reflect weight-based dosing and clindamycin dosing has been simplified.
7. A tetanus prophylaxis appendix has been added.

BACKGROUND

Infection has been a complication of war wounds throughout history. Infection prevention and control techniques in combat injuries, first widely practiced by Florence Nightingale in the Crimean War, have significantly advanced the care of the injured patient. The battlefield poses unique challenges in care for combat-related injuries. These include multiple patient transfers between hospitals and teams, the austere environment of theater medical care, and the difficulties arising during long distance aeromedical evacuation.[1-3] Infections are frequent complications of combat casualties and are characterized by multi-drug resistant organisms (MDROs). MDROs are predominantly acquired through nosocomial transmission in the chain of tactical combat casualty care.[4-5] These MDROs have been shown to originate from colonization of host nation patients which sets the stage for a more complicated healthcare environment. Infection prevention and control practices must be able to effectively adapt to these challenges and support the prevention and spread of infection by implementation of early and repetitive surgical wound care.

NOTE: *Related Clinical Practice Guidelines (CPGs) published by the Joint Trauma System (JTS): Ventilator-Associated Pneumonia; Blunt Abdominal Trauma Splenectomy Post-Splenectomy Vaccination; Invasive Fungal Infection in War Wounds; War Wounds: Debridement and Irrigation; Acute Traumatic Wound Management in the Prolonged Field Care Setting. CPGs are posted at https://jts.health.mil/index.cfm/PI_CPGs/cpgs.*

STANDARD PRECAUTIONS

These standard precautions apply to all patients, regardless of suspected or confirmed infectious status. The application of standard precautions during patient care is determined by the nature of the interaction between the healthcare worker and the patient, in addition to the extent of anticipated blood, body fluid or pathogen exposure.[6] These include but are not limited to the following.

- **Hand washing**: The World Health Organization's "five moments of hand hygiene" include:
  1. use of soap and water or alcohol-based sanitizer before patient contact;
  2. before aseptic tasks;
  3. after body fluid exposure risk;
  4. after patient contact; and
  5. after contact with patient surroundings, even if gloves were worn.[7]

  The gold standard to ensure adherence is direct observation which allows for immediate corrective feedback.[8]
- **Gloves**: Use to prevent contamination of hands when anticipating direct contact with non-intact skin, mucous membranes and blood or body fluids (e.g., dressing changes, starting IVs).
- **Gowns**: Isolation gowns are specified by standard and transmission-based precautions to protect the healthcare worker's arms and exposed body areas and prevent contamination of clothing with blood, body fluids, and other potentially infectious material (e.g., changing dressings or open wounds). Gowns are always used in conjunction with gloves.
- **Masks**: Masks protect healthcare workers from contact with infectious material originating from patients. They are also used to protect the patient when performing sterile techniques to protect patients from exposure to infectious agents carried in a healthcare workers' mouth or nose.
- **Goggles or Face Shields**: Use is based on anticipated exposure. Personal eyeglasses and contact lenses are not considered adequate eye protection.

Emphasize basic infection prevention control efforts (for example, hand hygiene, cohorting, transmission-based isolation) to prevent spread from other hospitalized patients and to decrease antibiotic pressure selecting for resistant organisms.

TRANSMISSION-BASED PRECAUTIONS

Transmission-based precautions covers droplets, airborne and physical contact. For this CPG, we will only describe the use of contact precautions for epidemiologically important organisms to include Clostridium difficile (C. difficile).

- **Cohorting**: Cluster host nation patients (who are not eligible to evacuate from theater) and U.S. and coalition patients (who are eligible for evacuation from theater) and separate when possible to reduce the risk of cross-contamination with MDROs.
- **Contact Precautions**: Gloves and gowns should be worn with all patients suspected or known to have MDRO colonization or infection with C. difficile- infection (CDI) and immediately placed

into contact precautions.[8] Refer to Appendix A of the 2007 Isolation Guidelines published by the Centers for Disease Control and Prevention (CDC) for a list of all diseases requiring contact precautions.[6]

NOTE: *U.S. personnel with skin and soft tissue infections presenting with abscess or furuncles should be assumed to have community-associated Methicillin-Resistant Staphylococcus Aureus (MRSA).*

- **Skin care**: Intensive care unit (ICU) patients should undergo daily bathing with topical chlorhexidine gluconate (CHG). CHG-impregnated wipes are available commercially. CHG has broad activity against gram-positive and gram-negative bacteria, facultative anaerobes and aerobes. Daily bathing of ICU patients has shown a reduction of infections with vancomycin-resistant enterococci (VRE) and methicillin-resistant staphylococcus aureus (MRSA). Daily bathing with CHG washcloths significantly reduces the risk of acquisition of MDROs.[9-11] See Appendix E: Antiseptic Body Cleaning.[11]

ANTIMICROBIAL STEWARDSHIP

- Antimicrobial drug usage contributes to the development of multidrug-resistant organisms. Use of overly broad antibiotics for combat trauma prophylaxis has resulted in an increased risk of MDRO infection without improvement in long-term clinical outcomes such as number of surgical procedures, length of hospitalization, or osteomyelitis.[12,13]
- All facilities should avoid unnecessary empiric use of broad spectrum antibiotics.
- When available, use local antibiogram to guide empiric therapy.
- Limit duration of antibiotic therapy. Several well-controlled studies have shown benefit to shorter courses of antibiotic therapy for common infectious problems (for example, pneumonia.). Prolonged duration of prophylaxis has not been shown to decrease long term rates of infections in retrospective study of 1,044 patients with combat-related open fractures.[12] The shortest course of post-injury antimicrobial therapy should be used.
- Appendix B: Post-Injury Antimicrobial Agent Selection and Duration describes antimicrobial prophylaxis regimens and proposed durations for combat wounded personnel.

ADHERENCE TO ANTIMICROBIAL PROPHYLAXIS

All facilities responsible for trauma care should monitor adherence to antimicrobial prophylaxis regimens.[14] Special situation: care of combat injured secondary to suicide bomber/blast injury

Blast injuries, especially those related to suicide bomber attacks, present a unique bloodborne pathogen risk if an impaled body part is introduced into the trauma patient. There have been reported cases of Hepatitis B virus (HBV)-positive impaled bone fragments recovered from suicide bomber victims in Israel.[15,16] This prompted the Israeli Ministry to provide post-exposure HBV vaccination as a practice. Since the initiation of the vaccine, HBV impaled fragments have been reported but no disease transmission.[17]

Prior to deployment, U.S. forces are required to receive a three-dose vaccine series, but 5-14% of vaccinated patients fail to achieve immunity (anti HBs <10 mlU/ml) which places them at increased risk

of transmission.[18,19] Thus we recommend attempting to verify anti-HBV status in those who are combat injured secondary to a suicide bomber and provide HBV immunoglobulin (HBIG) and HBV vaccine for those incompletely vaccinated with unknown titers or anti-HBs<10 mIU/ml. Recombinant Hepatitis B vaccine may be considered in those who have failed to respond to conventional Hepatitis B vaccine.

The risk of transmission for human immunodeficiency virus (HIV) is considered very low after blast injury and generally warrants no action.[17] However, in the case of penetrating blast injury in a highly endemic region, expert teleconsultation should be obtained to discuss case specifics. Specific recommendations can be obtained via email (ic.consult.army@mail.mil) or the AD.VI.S.OR hotline found at https://prolongedfieldcare.org/telemed-resources-for-us-mil/ or with infection prevention or infectious disease consultants (ic.consult.army@mail.mil) or with infectious disease consultants through the AD.VI.S.OR hotline. Hepatitis C (HCV) prophylaxis is not recommended, but testing can be considered in penetrating blast injury at the time of injury and at two, four, and six months.[20]

- **Healthcare Bloodborne Pathogen Exposure**: Staff caring for patients with combat wounds are at risk for blood borne pathogens (HBV, HIV and HCV).[20] At risk activities include security personnel searching patients (for example, patting down patients who are injection drug users, needle sticks, break in surgical technique and blood splatters to non-intact skin, eyes or mucosa).
- **Source testing should be obtained for HBV, HIV and HCV**: Testing for HBV and HIV should be obtained at time of exposure and up to six months post-exposure.[21] There is no post-exposure treatment for HCV, although excellent and well-tolerated regimens to cure HCV do exist for patients who become infected.
    - **For HBV**, treatment is based on the source's HBV surface antigen (HBsAg) status and the exposed patient's vaccine completion and post-vaccine titer (anti-HBs >10 mIU/ml. Refer to the *2018 CDC Prevention of Hepatitis B virus infection in the United States: Recommendations of the Advisory Committee on Immunization Practices: A summary of the MMWR report*.[22]
    - **For high risk HIV exposure**, 28 days of post-exposure prophylaxis with antiretroviral therapy should be administered within 1-2 hours but no later than 72 hours post-exposure. Refer to Updated *U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for post-exposure prophylaxis*.[21]

CARE OF COMBAT-INJURED PERSONNEL BASED ON ROLE OF CARE

See Appendix A: Recommendations to Prevent Infections Associated with Combat-related Injuries based on role of care.

- Infection prevention and control or antimicrobial utilization questions can be fielded through ic.consult.army@mail.mil.
- Ideally, Role 2 and 3 facilities should have a designated Infection Prevention and Control Officer (IPCO) as an additional duty or a full-time position if supported by manning levels. The U.S. Army holds an Infection Control in the Deployed Setting course open to all branches. Army Training Requirements and Resource System catalogs the course as 6A-F22 and U.S. Central Command requires and funds the course for Role 3 IPCOs.

- All facilities responsible for trauma care should monitor adherence to antimicrobial prophylaxis regimens as listed in the JTS guidelines for infection prevention after combat-related injuries and present rates to providers regularly. Rates should include adherence to recommended agents and duration of therapy.
- Ideally, Role 3 facilities should have a designated antimicrobial stewardship officer as an additional duty if supported by manning levels. Proposed antimicrobial stewardship measures should be discussed with an antimicrobial stewardship expert prior to implementation.

PERFORMANCE IMPROVEMENT (PI) MONITORING

POPULATION OF INTEREST

The population of interest are all trauma patients with penetrating injury or diagnosis of open wound (includes open fracture or joint).

INTENT (EXPECTED OUTCOMES)

1. All patients in the population of interest receive the preferred or alternate antibiotic, or reason for different choice is documented.
2. All patients in population of interest have antibiotic administered within 3 hours of injury.
3. All patients in population of interest have a duration of prophylactic antibiotic use less than 72 hours, or documentation of reason for extended use.
4. All patients in population of interest admitted to the ICU have daily antiseptic body cleaning (for example, Sage, Chlorhexadine).

PERFORMANCE/ADHERENCE MEASURES

1. Number and percentage of patients in the population of interest who receive the preferred or alternate antibiotic.
2. Number and percentage of patients in the population of interest who receive other antibiotics (or and reason for different choice of antibiotics is documented).
3. Number and percentage of patients in the population of interest who have an antibiotic administered within three hours of injury.
4. Number and percentage of patients in the population of interest who have a duration of prophylactic antibiotic use less than 72 hours or documentation of reason for extended use.
5. Number and percentage of patients in the population of interest admitted to the ICU that have antiseptic body cleaning daily.

DATA SOURCES

- Patient Record
- Department of Defense Trauma Registry (DoDTR)

SYSTEM REPORTING & FREQUENCY

The pervious sections constitute the minimum criteria for PI monitoring of this CPG. System reporting will be performed annually; additional PI monitoring and system reporting may be performed as needed.

The JTS Chief, JTS Program Manager, and the JTS PI Branch will perform the system review and data analysis.

RESPONSIBILITIES

It is the trauma team leader's responsibility to ensure familiarity, appropriate compliance, and PI monitoring at the local level with this CPG.

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APPENDIX A: RECOMMENDATIONS TO PREVENT INFECTIONS LINKED TO COMBAT-RELATED INJURIES

Recommendations to prevent infections associated with combat-related injuries based on role of care. *Criteria for allowing retained fragments to remain behind: entry/exit wounds < 2 cm; no bone, joint, vascular, body cavity involvement; no high risk etiology (for example, mine); no obvious infection; assessable by x-ray.*

Table 1. Recommendations to Prevent Infections Linked to Combat-Related Injuries

Common Surgical Diagnoses	Care Category	Recommendations
Role 1 (Prehospital)	Initial care in the field	• Bandage wounds with sterile dressings (avoid pressure over eye wounds) • Stabilize fractures • Transfer to surgical support as soon as feasible
	Post-injury antimicrobials	• Provide single dose point of injury antimicrobials (Appendix B) if evacuation is delayed or expected to be delayed
Role 1 and Role 2 without surgical support (lla)	Post-injury antimicrobials	• Provide intravenous antimicrobials for open wounds (Appendix B) within 3 hours of injury. • Provide tetanus toxoid and immune globulin as appropriate (see Appendix C). • Gram negative coverage with aminoglycoside or fluoroquinolone not recommended. • Addition of penicillin to prevent clostridial gangrene or streptococcal infection is not recommended. • Re-dose antimicrobials if large volume blood product resuscitation. • Use only topical antimicrobials for burns.
	Debridement and irrigation	• Irrigate minor wounds to remove gross contamination with normal saline, sterile, or potable water without additives. • Debridement and irrigation of large wounds should be done at a surgical facility (Role 2b or 3). • Do not attempt to remove retained deep soft tissue fragments meeting criteria listed above. • Provide cefazolin 2 gm IV x 1 dose. • Refer to the *JTS War Wounds: Debridement and Irrigation CPG*.
Role 2 with surgical support and Role 3	Post Injury Antimicrobials	• Provide intravenous antimicrobials (Appendix B), within 3 hours of injury. • Provide tetanus toxoid and immune globulin as appropriate (Appendix C). • Re-dose Cefazolin with each debridement until bone has soft tissue coverage (Appendix B). • Gram negative coverage with aminoglycoside or fluoroquinolone not recommended. • Addition of penicillin to prevent clostridial gangrene or streptococcal infection is not recommended. • Re-dose antimicrobials if large volume blood product resuscitation. • Use only topical antimicrobials for burns. • Refer to the *JTS Invasive Fungal Infection CPG* for dismounted blast injuries, high amputations, and cases of recurring necrosis on staged debridements.

Common Surgical Diagnoses	Care Category	Recommendations
		• Provide post splenectomy immunizations if indicated. (See the *JTS Blunt Abdominal Trauma, Splenectomy, and Post-splenectomy Vaccination CPG*.)
	Debridement and irrigation	• Refer to the *JTS War Wounds: Debridement and Irrigation CPG*. • Antimicrobial beads pouches, or topical powder may be used. • Do not attempt to remove retained deep soft tissue fragments if criteria above are met. • Do not obtain cultures unless infection is suspected. • Do not attempt primary wound closure (except for dura and face).
	Other Surgical Irrigation	• N/A
Role 4	Post-injury antimicrobials	• Re-dose Cefazolin for 24 hours with each subsequent washout involving exposed bone. • Antimicrobial beads or pouches may be used. • Refer to the *JTS Invasive Fungal Infection CPG* for dismounted blast injuries, high amputations, and cases of recurring necrosis on staged debridements. • Provide post splenectomy immunizations if not documented. (See the *JTS Blunt Abdominal Trauma, Splenectomy, and Post-splenectomy Vaccination CPG*.)
	Debridement and irrigation	• Refer to the *JTS War Wounds: Debridement and Irrigation CPG*. • Do not attempt to remove retained deep soft tissue fragments if criteria above are met. • Do not obtain cultures unless infection is suspected. • Wounds should not be closed until 3-5 d post-injury when wound is clean and all devitalized tissue is removed.
	Other surgical management	• N/A

APPENDIX B : POST-INJURY ANTIMICROBIAL AGENT SELECTION & DURATION

Post-injury antimicrobial agent selection and duration based upon injury pattern.

Table 1. Post-Injury Antimicrobial Agent Selection and Duration

Injury	Preferred Agent(s)	Alternate Agent(s)	Duration
Extremity Wounds (Includes Skin, Soft Tissue, and Bone)			
Skin, soft tissue, no open fractures	Cefazolin, 2 gm IV q6-8h†‡	Clindamycin (450 mg PO TID or 900 mg IV q8h)	24 hours
Skin, soft tissue, with open fractures, exposed bone, or open joints	Cefazolin, 2 gm IV q6-8h†‡ §	Clindamycin 900 mg IV q8h	24 hours initially and repeat with each subsequent I&D until soft tissue coverage.
Thoracic Wounds			
Penetrating chest injury without esophageal disruption	Cefazolin, 2 gm IV q6-8h†‡	Clindamycin (450 mg PO TID or 900 mg IV q8h)	1 day
Penetrating chest injury with esophageal disruption	Cefazolin, 2 gm IV q6-8h†‡ PLUS metronidazole 500 mg IV q8-12h	Ertapenem 1 gm IV x 1 dose, OR Moxifloxacin 400 mg IV x 1 dose	Stop 24 hours after definitive closure
Abdominal Wounds			
Penetrating abdominal injury with suspected/known hollow viscus injury and soilage; may apply to rectal/perineal injuries as well	Cefazolin, 2 gm IV q6-8h†‡ PLUS metronidazole 500 mg IV q8-12h	Ertapenem 1 gm IV x 1 dose, OR Moxifloxacin 400 mg IV x 1 dose	Stop 24 hours after control of contamination
Maxillofacial And Neck Wounds			
Open maxillofacial fractures, or maxillofacial fractures with foreign body or fixation device	Cefazolin, 2 gm IV q6-8h†‡	Clindamycin 900 mg IV q8h	24 hours
Central Nervous System Wounds			
Penetrating brain injury	Cefazolin 2 gm IV q6-8h. †‡Consider adding metronidazole 500 mg IV q8-12h if gross contamination with organic debris	Cetriaxone 2 mg IV q24h. Consider adding metronidazole 500 mg IV q8-12h if gross contamination with organic debris. For patients with a history of anaphylaxis or allergies to cephalosporins, vacomycin 15-20mg/kg IV q 8-12h PLUS ciprofloxacin 400 mg IV q8-12h	5 days or until CSF leak is closed, whichever is longer

Injury	Preferred Agent(s)	Alternate Agent(s)	Duration
Penetrating spinal cord injury	Cefazolin, 2 gm IV q6-8h.†‡ ADD metronidazole 500 mg IV q8-12h if abdominal cavity is involved	As above. ADD metronidazole 500 mg IV q8-12h if abdominal cavity is involved	
Eye Wounds			
Eye injury, burn or abrasion	Topical: Erythromycin or Bacitracin ophthalmic ointment QID and PRN for symptomatic relief. Systemic: No systemic treatment required	Fluoroquinolone 1 drop QID	Until epithelium healed (no fluoroescein staining)
Eye injury penetrating	Levofloxacin 750 mg IV/PO once daily + vancomycin 15-20 mg/kg IV q8-12h. Prior to primary repair, no topical agents should be used unless directed by ophthalmology	Moxifloxacin 400 mg IV/PO once daily	7 days or until evaluated by an ophthalmologist
Burns			
Superficial burns	Topical antimicrobials with daily dressing changes (include mafenide acetate** or silver sulfadiazine; may alternate between the two), OR silver impregnated dressing changed q3-5d, OR Biobrane	Silver nitrate solution applied to dressings	Until healed
Deep partial thickness burns	Topical antimicrobials with daily dressing changes, OR silver impregnated dressing changed q3-5d, PLUS excision and grafting	Silver nitrate solution applied to dressings PLUS excision and grafting	Until healed or grafted
Full thickness burns	Topical antimicrobials with daily dressing changes PLUS excision and grafting	Silver nitrate solution applied to dressings PLUS excision and grafting	Until healed or grafted
Point of Injury/Delayed Evacuation			
Expected delay to reach surgical care	Moxifloxacin 400 mg PO x 1 dose. Ertapenem 1 g IV or IM if penetrating abdominal injury, shock, or unable to tolerate PO medications	Levofloxacin 500 mg PO x 1 dose. Cefotetan 2 g IV or IM q12h if penetrating abdominal injury, shock, or unable to tolerate PO medications	Single dose therapy

**Post-injury antimicrobial agents are recommended to prevent early post-traumatic infectious complications, including sepsis, secondary to common bacterial flora. Selection is based on narrowest spectrum and duration required to prevent early infections prior to adequate surgical wound management. This narrow spectrum is selected to avoid selection of resistant bacteria. The antimicrobials listed are not intended for use in established infections, where multidrug-resistant (MDR) or other nosocomial pathogens may be causing infection.*

†Cefazolin may be dosed based on body mass: 1 gram if weight < 80 kg (176 lbs), 2 grams if weight 81-160 kg (177-352 lbs), 3 grams if weight > 160 kg (>352 lbs); doses up to 12 grams daily are supported by FDA-approved package insert.

‡Pediatric dosing: cefazolin, 20-30 mg/kg IV q6-8h (maximum, 100 mg/kg/day); metronidazole, 7.5 mg/kg IV q6h; clindamycin 25-40mg/kg/day IV divided q6- 8h; ertapenem, 15 mg/kg IV or IM q12 (children up to 12 years) or 20 mg/kg IV or IM once daily (children over 12 years; maximum, 1 gm/day); ceftriaxone, 100 mg/kg/day IV divided q12-24h (dosing for CNS injury); levofloxacin, 8 mg/kg IV or PO q12h (levofloxacin is only FDA-approved in children for prophylaxis of inhalational anthrax in children > 6 months of age, but this dose is commonly used for other indications); vancomycin 60 mg/kg/day IV divided q6h (dosing for CNS injury); ciprofloxacin, 10mg/kg IV (or 10-20mg/kg PO) q12h.

§These guidelines do not advocate adding enhanced Gram negative bacteria coverage (i.e., addition of fluoroquinolone or aminoglycoside antimicrobials) in type III fractures.

***Mafenide acetate is contraindicated in infants less than 2 months of age.*

††Post-injury antimicrobial therapy as suggested by the Acute Traumatic Wound Management in the Prolonged Field Care Setting CPG.

APPENDIX C: TETANUS PROPHYLAXIS RECOMMENDATIONS

Tetanus Prophylaxis recommendations from the Advisory Committee on Immunization Practices

Figure. Tetanus Immunization Chart

Tetanus Immunization Status	Minor Clean Wound	Major Clean Wound	Contaminated Wound (War Wounds)
Fully immunized recent Td booster	N/A	N/A	N/A
Fully immunized Td booster 5–10 years ago	N/A	Tdap	Tdap
Fully immunized, no booster for >10 years	Tdap	Tdap	Tdap
Unknown, none, or incomplete immunization	Tdap	Tdap and TIG (250U)	Tdap and TIG (500U)

N/A, not applicable; Td, tetanus and diphtheria; Tdap, tetanus-diphtheria-acellular pertussis; TIG, tetanus immune globulin.
***Note**: Tetanus vaccination of mother gives her protection and protects the newborn in the first few weeks of life.*

Source: Special Operations Forces Medical Handbook, U.S. DoD. Reprinted from the JTS Acute Traumatic Wound Management – Prolonged Field Care CPG, 24 Jul 2017

* Such as, but not limited to, wounds contaminated with dirt, feces, soil, and saliva; puncture wounds; avulsions; and wounds resulting from missiles, crushing, burns, and frostbite.

† DTaP is recommended for children aged <7 years. Tdap is preferred to Td for persons aged ≥11 years who have not previously received Tdap. Persons aged ≥7 years who are not fully immunized against pertussis, tetanus or diphtheria should receive one dose of Tdap for wound management and as part of the catch-up series.

§ Persons with HIV infection or severe immunodeficiency who have contaminated wounds should also receive TIG, regardless of their history of tetanus immunization.

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APPENDIX D : POST EXPOSURE MANAGEMENT OF PERSONNEL

Post exposure management of personnel after occupational percutaneous and mucosal exposure to blood or any body fluids.

Table. Post Exposure Management of Personnel

Post Exposure Management of Personnel					
Healthcare Personnel Status	Post exposure testing		Post exposure prophylaxis		Post vaccination serologic testing †
	Source patient (HBs Ag)	HCP testing (anti-HBs)	HBIG*	Vaccination	
Documented responder § after complete series (≥3 doses)	**No action needed**				
Documented non-responder ¶ after 6 doses (2 complete series)	Positive/unknown		HBIG x2 separated by 1 month		No
	Negative	**No action needed**			
Response unknown after a complete series	Positive/unknown	‹ 10 mIU/mL	HBIG x1	Initiate revaccination	Yes
	Negative	‹ 10 mIU/mL	None		
	Any result	≥ 10 mIU/mL	**No action needed**		
Unvaccinated/incompletely vaccinated or vaccine refusers	Positive/unknown		HBIG x1	Complete vaccination	Yes
	Negative		None	Complete vaccination	Yes

(Morb Mortal Wkly Rep. 2018; 67(No. RR-1) [:1-31.])

Abbreviations: HCP – Healthcare Personnel; HBsAg – Hepatitis B surface antigen; anti-HBs – antibody to Hepatitis B surface antigen; HBIG – Hepatitis B immune globulin.

** HBIG should be administered intramuscularly as soon as possible after exposure when indicated. The effectiveness of HBIG when administered ›7 days after percutaneous, mucosal, or nonintact skin exposures is unknown. HBIG dosage is 0.06 mL/kg.*

† Should be performed 1-2 months after the last dose of the Hep B vaccine series (and 4-6 months after administration of HBIG to avoid detection of passively administered anti-HBs) using a quantitative method that allows detection of the protective concentration of anti-HBs (≥10 mIU/mL)

§ A responder is defined as a person with anti-HBs ≥10 mIU/mL after ≥3 doses of HepB vaccine.

¶ A nonresponder is defined as a person with anti-HBs ‹10 mIU/mL after ≥6 doses of HepB vaccine.

APPENDIX E : CHLORHEXIDINE ANTISEPTIC BODY CLEANING

(Adopted from LRMC Policy)

Policy: The chlorhexidine antiseptic body cleaning wash cloths will be used on all intensive care unit patients unless a patient declines or has any known sensitivities to ingredients.

Purpose: To reduce the risk of hospital associated infection by decreasing bacterial colonization that can cause skin infection.

Applicability: The antiseptic body cleaning wash cloths policy is applicable to all healthcare workers assigned to provide bedside bathing to patients in the medical facility.

Responsibility: It is the responsibility of the nursing managers to ensure that this policy is implemented correctly and consistently.

Exclusion: Avoid facial area, open wounds, and areas of 2nd or 3rd degree burned skin.

PROCEDURE

1. **When the patient arrives to the unit first bathe patient with soap/water add 30 cc of Hibiclens 4 % to the basin and bathe patient to remove all visible dirt.**
    a. Wait 6 hours after initial bath and bathe patient with antiseptic body cleaning washcloths once a day.
    b. Warming the antiseptic body cleaning washcloths (if warmer not available).
    c. Warm package in the dedicated microwave settings: 1000 watts for 30 seconds.
    d. Consult package for complete indications, ingredients, and warnings.
2. **Bathing a patient with antiseptic body cleaning washcloths**
    a. Wash hands prior to the procedure and don a pair of gloves and a gown.
    b. Explain the procedure to the patient.
    c. Ensure the patient has privacy. Have patient remove gown or assist in the removal as needed. Use a towel or sheet to cover the patient appropriately.
    d. Peel back the label on the package and test the temperature by touching the top washcloth. Remember, gloves diminish sensitivity to heat. If temperature is acceptable, proceed to the next step.
    e. Remove #1 washcloth.
        i. Test washcloth to back of patient's hand or inside wrist/forearm area.
        ii. Ask patient if the temperature is acceptable.
            - If acceptable, proceed with next step.
            - If NOT acceptable, STOP the procedure until temperature is acceptable to the patient.
            - Continue to monitor patient's comfort level with the temperature as the bath progresses.

f. For incontinence care, clean using terrycloth towels, soap and water, followed by wiping the involved skin with as many chlorhexidine cloths as necessary.

g. Apply clean gown, reposition and cover the patient.

h. Discard all disposables as general waste.

NOTE: Do not flush antiseptic body cleaning washcloths in the toilet!

i. Document procedure in progress notes.

Table. Wash cloth sequence

Cloth	Areas*	Action
***Do Not Use on Face**		
1	Both arms and chest	Discard
2	Perineum	Discard
3	Right Leg	Discard
4	Left Leg	Discard
5	Back	Discard
6	Buttocks	Discard

5. What To Do

a. Do use chlorhexidine (CHG) baths in place of daily bathing with soap and water.

b. Do massage firmly into skin to bind skin proteins and prevent bacteria for 24 hours.

c. Only use CHG-compatible lotions.

d. Use over superficial wounds, including stages 1 and 2 decubitus ulcers.

6. What NOT To Do

a. Do NOT use above jaw line.

b. Do NOT rinse or wipe off CHG. Let air dry.

c. Do NOT flush CHG cloths (discard in trash, not toilet or commode)

d. Do NOT include patients who are allergic to CHG.

APPENDIX F: ADDITIONAL INFORMATION REGARDING OFF-LABEL USES IN CPGS

PURPOSE

The purpose of this Appendix is to ensure an understanding of DoD policy and practice regarding inclusion in CPGs of "off-label" uses of U.S. Food and Drug Administration (FDA)–approved products. This applies to off-label uses with patients who are armed forces members.

BACKGROUND

Unapproved (i.e. "off-label") uses of FDA-approved products are extremely common in American medicine and are usually not subject to any special regulations. However, under Federal law, in some circumstances, unapproved uses of approved drugs are subject to FDA regulations governing "investigational new drugs." These circumstances include such uses as part of clinical trials, and in the military context, command required, unapproved uses. Some command requested unapproved uses may also be subject to special regulations.

ADDITIONAL INFORMATION REGARDING OFF-LABEL USES IN CPGS

The inclusion in CPGs of off-label uses is not a clinical trial, nor is it a command request or requirement. Further, it does not imply that the Military Health System requires that use by DoD health care practitioners or considers it to be the "standard of care." Rather, the inclusion in CPGs of off-label uses is to inform the clinical judgment of the responsible health care practitioner by providing information regarding potential risks and benefits of treatment alternatives. The decision is for the clinical judgment of the responsible health care practitioner within the practitioner-patient relationship.

ADDITIONAL PROCEDURES

Balanced Discussion

Consistent with this purpose, CPG discussions of off-label uses specifically state that they are uses not approved by the FDA. Further, such discussions are balanced in the presentation of appropriate clinical study data, including any such data that suggest caution in the use of the product and specifically including any FDA-issued warnings.

Quality Assurance Monitoring

With respect to such off-label uses, DoD procedure is to maintain a regular system of quality assurance monitoring of outcomes and known potential adverse events. For this reason, the importance of accurate clinical records is underscored.

Information to Patients

Good clinical practice includes the provision of appropriate information to patients. Each CPG discussing an unusual off-label use will address the issue of information to patients. When practicable, consideration will be given to including in an appendix an appropriate information sheet for distribution to patients, whether before or after use of the product. Information to patients should address in plain language: a) that the use is not approved by the FDA; b) the reasons why a DoD health care practitioner would decide to use the product for this purpose; and c) the potential risks associated with such use.