



MANAGE HEMORRHAGE





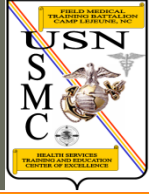
OVERVIEW



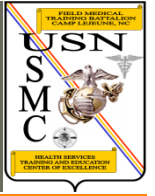
- Types of Hemorrhage
 - Signs and Symptoms of External and Internal Hemorrhage
- Estimating Blood Loss
- Methods of Hemorrhage Control
- Tourniquet Application



LEARNING OBJECTIVES

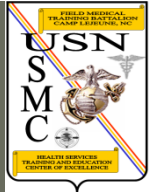


Please Read Your
Terminal Learning Objectives
And
Enabling Learning Objectives





BACKGROUND



- Historically, 20% of injured combatants die on the battlefield
- In Vietnam, over 60% died from bleeding out within 3 to 5 minutes.

Notice how strong flow is.
This is a small, surgically induced bleed.
Imagine how fast a big hole would bleed!





BACKGROUND



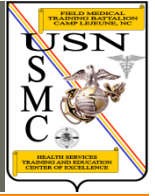
- Many of these deaths could have been prevented with timely intervention.
- To decrease these statistics, you must be able to rapidly identify and manage hemorrhage.



TYPES OF HEMORRHAGE



- Loss of blood from damaged vessels is a large source of external hemorrhage in combat
 - Arterial - **Bright red blood**, spurting
 - Venous - **Dark red**, steady even flow
 - Capillary - **Brick red**, oozing



EXTERNAL HEMORRHAGE

- Easy to recognize: blood everywhere
- Causes
 - Penetrating wounds
 - Gunshot, stab and shrapnel wounds
 - De-gloving wounds
 - Vehicle accidents
 - Amputating wounds
 - Blasts from artillery, mortars or landmines

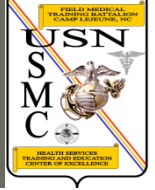




EXTERNAL HEMORRHAGE



- You must determine which bleeding is **LIFE-THREATENING** and which is non-life threatening.
 - This depends on the amount of blood loss and the class of shock of the patient.

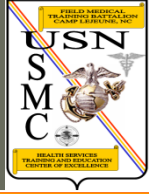


SIGNS & SYMPTOMS

- External Hemorrhage
 - Massive blood loss
 - Obvious signs and symptoms of shock



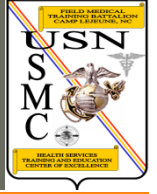
INTERNAL HEMORRHAGE



- Harder to recognize, can't visually see it
- Frequent cause of death
- Indications: bleeding from mouth, rectum, or blood in the urine
- Requires surgical intervention
- Treat and TACEVAC



INTERNAL HEMORRHAGE



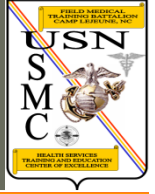
- Causes
 - Blunt trauma
 - Concussion injuries from blasts
 - Vehicle accidents
 - Falling from heights
 - Closed fractures



SIGNS & SYMPTOMS

- Internal Hemorrhage
 - Hematemesis
 - Hemoptysis
 - Hematochezia
 - Melena
 - Hematuria
 - Ecchymosis
 - Rigid abdomen
 - Rapidly forming hematoma and edema
 - Signs of shock

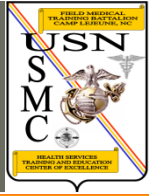




ESTIMATING BLOOD LOSS (EBL)



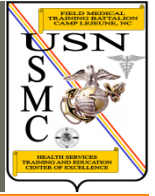
ESTIMATE BLOOD LOSS (EBL)



- Why is determining EBL important?
 - Average adult blood volume = approx. 5 liters
 - Loss of 25% to 40% = Life Threatening Condition
 - Helps to predict who will go into or be in shock
 - Identifies who to treat first



ESTIMATE BLOOD LOSS (EBL)



- How to determine EBL:
 - Look for blood surrounding patient
 - Inspect clothing for blood saturation
 - Inspect bandage saturation
 - Determine level of shock

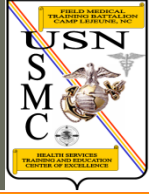


ESTIMATE BLOOD LOSS (EBL)

	Small Battle Dressing	Medium Battle Dressing	Large Battle Dressing	Abdominal Battle Dressing
Amount of estimated blood	300 ml	750 ml	1000 ml	2500 ml
EBL	About 6%	About 15%	About 20%	About 50%
*Amounts are based on the average adult blood volume of about 5 liters.				

Massive hemorrhage may be fatal within 60 -120 seconds.





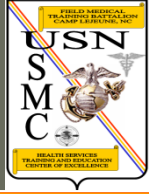
METHODS OF HEMORRHAGE CONTROL



DIRECT PRESSURE



- Initial control measure (unless in Care Under Fire Phase)
- Will control most types of hemorrhage
- Requires two hands and lots of pressure to be done right
- You can convert it to a pressure dressing



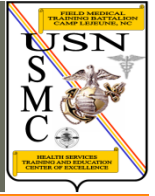
BANDAGES AND DRESSINGS

- Any material applied to hold a dressing in place, wrap or bind a body part
- Provides additional pressure to dressing
- Protects the dressing





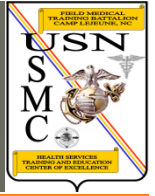
BANDAGES AND DRESSINGS



- Ensure dressing is tight enough
- Provide pressure over the entire wound
- Dressing must cover the entire wound, bandage must cover the entire dressing
- Leave fingers and toes exposed
 - Assess PMS



PRESSURE DRESSING



- If hemorrhage continues
 - DO NOT remove the first dressing
 - Apply a second dressing over the first
- If hemorrhage still cannot be controlled:
 - Use a tourniquet!
- Once hemorrhage is controlled, cover the entire dressing with a bandage

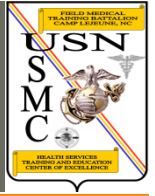
KERLIX

- Advantages
 - Absorbency
 - Stretchable
 - Sterile
 - Packs well
- Disadvantages
 - Loses bulk
 - Catches debris
 - Snags easily





ACE WRAP



- Advantages
 - Quickly applied
 - Pressure to entire area
 - Excellent support
- Disadvantages
 - Decrease peripheral circulation



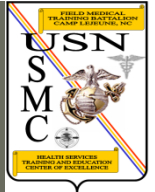
CRAVATS

- Advantages
 - Versatile
 - Small packaging
 - Can be used as a tourniquet
- Disadvantages
 - Very little absorbency





COMBINATION: DRESSING/BANDAGE



- Cinch Tight
 - Found in the IFAK
 - Medium to large battle dressing combined with a 4 inch ace wrap





“H” BANDAGE

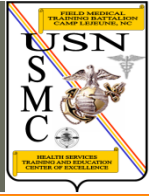


- Found in the IFAK
- It is a medium to large battle dressing combined with a 4 inch wide Ace Wrap.
- Has a distinctive “H” on dressing to help apply pressure





FIELD EXPEDIENT DRESSINGS



- Patient clothing
- Patient equipment
- Anything else available to you
- The only limitation is YOUR imagination!



HEMOSTATIC AGENTS

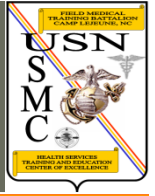


- A hemostatic agent causes the wound to develop a clot that stops the flow of blood and will remain within the wound until removed by medical personnel.
- The only hemostatic agent approved by the CoTCCC is QuikClot Combat Gauze.
- QuikClot Combat Gauze is the first-line treatment of life threatening hemorrhage in a tactical setting that is not amenable to tourniquet placement.





HEMOSTATIC AGENTS



COMBAT GAUZE

- Combines surgical gauze with an inorganic material that stops arterial and venous bleeding in seconds.
- Does not create heat
- Is non-allergenic
- Fits any size or shape wound
- Rolls are 4 yards long by 3" wide



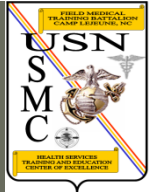
COMBAT GAUZE



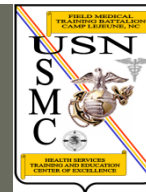
- Application Procedures
 - Expose injury
 - Remove excess blood; preserve any clots
 - Locate source of most active bleeding
 - Remove Combat Gauze from package
 - Pack tightly into wound
 - May be re-packed or adjusted to ensure proper placement



COMBAT GAUZE

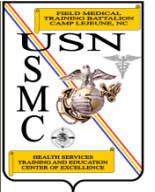


- Application Procedures (cont.)
 - Apply enough direct pressure to stop bleeding
 - Hold pressure for a minimum of 3 minutes
 - Once applied Combat Gauze will be removed by authorized medical personnel only
 - Can be reinforced with an additional roll if bleeding continues
 - Leave in place and secure with pressure dressing
 - Document, place empty package near wound, and transport the patient



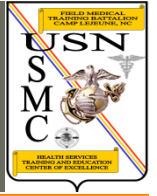


TOURNIQUETS





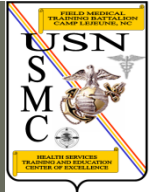
TOURNIQUET APPLICATION



- In Care Under Fire, *A TOURNIQUET IS THE FIRST OPTION* for controlling life-threatening extremity hemorrhage. Place the tourniquet tightly over the uniform, proximal to the wound.
 - It can be properly placed during Tactical Field Care.



CAT TOURNIQUET

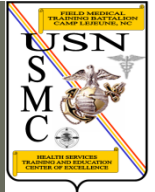


- Tourniquet of choice is the Combat Application Tourniquet (CAT)
- Issued upon deployment
- Lightweight and easy to use, even on yourself
- Beware of counterfeit!





SOF-T TOURNIQUET

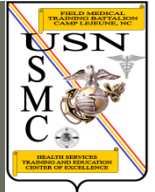


- 1-1/2 inch constriction band
- Aluminum windlass rod
- Applied the same way, regardless of location





FIELD EXPENDIENT TOURNIQUET





TOURNIQUET POINTERS



- Do NOT place over a joint
- Do NOT place over two bones (tib/fib, radius/ulna)
- Do NOT cover with dressing, blanket, clothing, etc., leave exposed



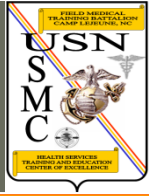
APPLICATION TIGHTNESS



- The bigger the extremity, the tighter it needs to be.
- May need multiple tourniquets
- Don't stop tightening when the casualty complains it hurts but when hemorrhage is controlled.
- Consider use of pain medications
- Mark the casualty
- Do NOT cover the tourniquet after application. Leave it exposed to ease monitoring.



TOURNIQUET TO A DRESSING



Tourniquet use is the first line of hemorrhage control while in the Care Under Fire Phase.

Only when in the Tactical Field Care Phase should you even consider converting a tourniquet to a pressure dressing.



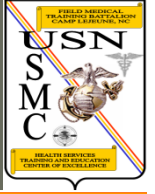
TOURNIQUET TO A DRESSING



Do **NOT** convert a tourniquet to a pressure dressing under the following conditions:

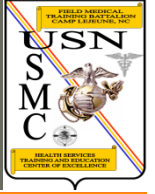
- The casualty is in Class III or IV shock
- There has been a complete amputation below the tourniquet.
- There is no one to monitor the casualty for re-bleeding.
- Tourniquet has been in place for more than 6 hours.
- Short transport time to surgical intervention.





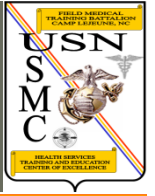
DEMONSTRATION





PRACTICAL APPLICATION





CTPS LAB



