

11:30 AM AND AN EXPLOSION OCCURS IN A SUBURBAN MALL.

The first EMS units on the scene are confronted with 30 plus casualties with several casualties having missing limbs and experiencing massive external and internal hemorrhage. How will 2 to 4 initial responders control hemorrhage with direct pressure and yet, simultaneously perform triage and transport multiple casualties?

	HemCon Bandage	QuikClot	Celox	Combat Gauze	DFSD	Trauma Stat	WoundStat	Super QR
FORM FACTOR	Available in the original 4x4 pad as well as thinner, newer versions available in a 4x2 and 2x2 size as well as a rolled curlex form. Packaging is rugged yet easy to open. Single use only.	Originally a granular powder, QuikClot now comes as a small gauze "sponge". While the powder is somewhat messy to place into a wound the new sponge form can be placed easily.	A granular powder in single use bags. Celox has developed an applicator for placement into deeper wounds, to address difficulty with application of powder.	A pliable, Kaolin gauze in curlex like form from the folks that make QuickClot	The Dry Fibrin Sealant Dressing (DFSD) comes as a compressed brick-like wafer on a compression bandage.	Rolled up gauze.	This product consists of a granular combination of a smectite mineral and a super absorbent polymer and comes in a foil pouch.	Comes in powder form that is a non-zeolite mineral hemostatic agent.
HOW DOES IT WORK?	Made from ultra-purified chitosan which anionically binds with RBCs and exposed tissue to form a clot as well as sealing wounds. Shell fish allergy is not a concern or contraindication to use.	The key ingredient is the inert mineral zeolite. By pulling water into the zeolite it concentrates clotting factors facilitating clot formation.	It is a chitosan derived powder. It also works by binding to RBCs and exposed tissue.	It is a kaolin impregnated gauze.	DFSD includes human fibrinogen (15 mg/cm ²), human thrombin (37.5 U/cm ²), and calcium chloride (117 µg/cm ²) freeze-dried onto a polygalactin (Vicryl™) mesh backing.	Composed of nonwoven porous polyethylene fibers with high surface area that are filled with precipitated silica. These filled fibers are impregnated with a chitosan derivative.	The granular combination of a smectite mineral and a super absorbent polymer is capable of absorbing 200 times its weight in water. It also has a significant negative electrostatic charge that may assist in activating the intrinsic clotting pathway.	A non-zeolite mineral composed of potassium iron oxyacid salt and hydrophilic polymer. When in contact with blood, Super QR forms an instant artificial scab that seals the injury, stops the bleeding and allows a natural hemostatic clot to form beneath.
THE PROS	HemCon is battlefield tested and considered by many to be the gold standard. Numerous animal and human studies show its efficacy. No significant side effects found. It's antibacterial and antifungal.	Easy-to-handle sponges are easy to carry and apply. Proven efficacy through many animal studies and a few human case series. The cost is also very affordable.	One good 6 subject animal study. Celox is inexpensive and should also have some antimicrobial effect.	One unpublished animal study shows efficacy. Is not supposed to have any heat production, but it is a curlex form.	Although no longer in production, it was extremely effective in numerous studies, particularly for arterial bleeding.	Theoretically can be stuffed in wounds. Efficacy yet to be documented.	Early studies have shown effectiveness for arterial bleeding. The main hemostatic mechanism of this agent appears to be due to the strong tissue binding of the mold that is formed when the mineral is mixed with blood or other fluids.	Early studies have shown effectiveness for arterial bleeding.
THE CONS	Pricier than some, but still reasonable. Chitoflex is very sticky when bloody so needs to be stuffed into wound quickly or it will stick to gloved hands.	Initial powder caused a reaction hot enough to cause tissue damage. The newer formulations reportedly have less heat production, but more experience is needed.	Lack of widespread use. Its powder form can make it difficult to apply to high volume/pressure wounds. In the words of a special operations medic "If it's a powder it's a nonstarter".	An unknown quantity, but can be stuffed into small wounds	No longer available and very costly. Furthermore, concerns have been raised about its durability under combat conditions, as the dressing tends to break apart if not handled carefully.	Not FDA approved.	An unknown quantity, but can be stuffed into small wounds. It is also a powder which can be difficult to apply well to high volume/pressure wounds.	As a powder, this may be difficult to apply well to high volume/pressure wounds. Furthermore, early study showed a potential for exothermic reaction when in contact with blood.
TIME ON THE MARKET	Deployed with the Special Forces in 2003 this bandage has over 4 years of field testing, the longest of any hemostatic agent.	Utilized by the marine corps since the start of the Iraq war this has the second longest history of use. Received a boost when it got a cameo in the movie "Shooter".	This is the first new agent since HemCon and QuikClot to really enter the market. Experience is still limited compared to other agents. It hasn't received the same widespread military use.	Not yet out, but being studied and shown at trade-shows.	Although no longer available, DFSD is included as it was the first hemostatic bandage developed in a joint project between the US Army and The Red Cross. It may still be found overseas.	Not yet out, but being studied and shown at trade-shows.	Just released and being studied and shown at trade-shows.	Just released and being studied and shown at trade-shows.
PRICE TAG	From \$27 (2x2) to \$150 (4x4), depending on size	\$30 for the 3.5 oz sponge \$10 for the 1 oz "sport" sponge. The old powder form costs about \$30.	\$15 for a 15gm bag, \$30 for a 30gm bag	Company states less than \$100	\$1000 per bandage	Price TBD	\$30-\$35 for a 5.5-ounce pouch	Unknown at this time
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