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Hier wordt geïnvesteerd in uw toekomst!

HemoClear blood filtration device

Changing the transfusion management paradigm in
casualty and disaster management



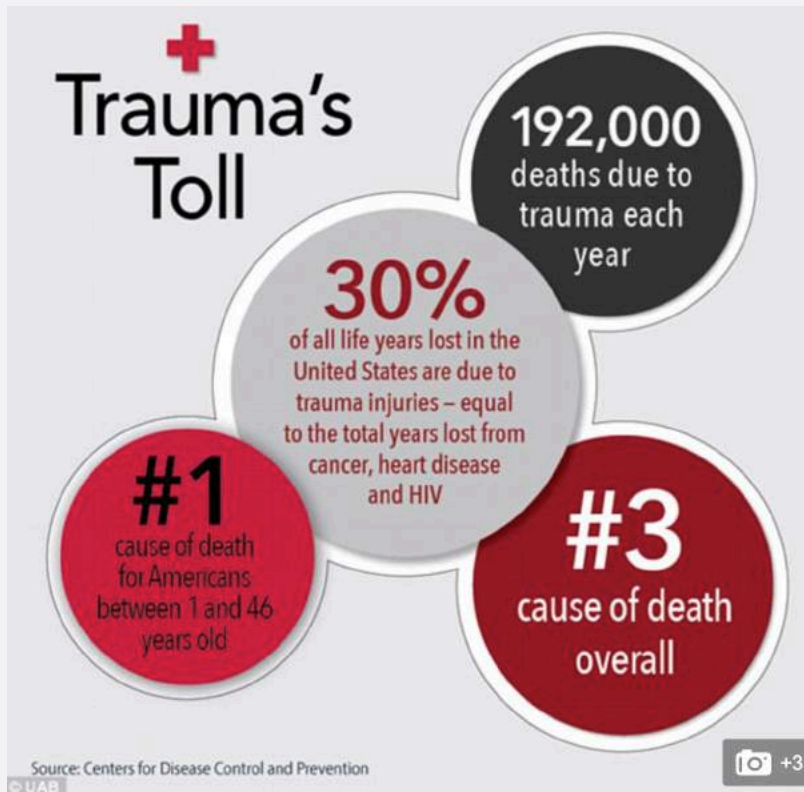
Gelderland & Overijssel
Gebundelde Innovatiekracht

 **HemoClear**

Blood loss: A **major challenge** in Healthcare



Between 2001 and 2011, more than 80 per cent of preventable US war injury deaths resulted from blood loss.



There is a so-called 'golden-hour' that is crucial for getting a transfusion. If a soldier can quickly get donor blood, there chances of survival increases dramatically.

- Casualties
- Trauma
- Disaster management

- Potential on site solutions:
 - Medication
 - Artificial blood
 - Donor blood
 - **Recuperated own blood by Hemoclear**

Testing a One-Shot Solution for
SURVIVING BLOOD LOSS

UAB has received a \$10 million contract from the U.S. Department of Defense to launch the first human trials of a potentially lifesaving treatment for wounded soldiers — and trauma victims everywhere.

THE PROBLEM:

80%+
of potentially survivable U.S. battlefield deaths from 2001-2011 were due to severe blood loss.

TIME IS EVERYTHING. Victims who don't get blood product resuscitation within an hour usually won't survive.

THE DISCOVERY:

UAB researchers have found a way to **EXTEND THAT TIME** significantly. They discovered that a single injection of **EE-3-SO₄**, a synthetic form of the female hormone estrogen, enables **SIX-HOUR** survival times after extreme blood loss in animal models.

THE TRIAL:

In UAB's specialized Phase 1 Clinical Trials Unit, EE-3-SO₄'s safety and efficacy will be tested in healthy human volunteers.

Because estrogen is a natural human hormone, it is expected to have few side effects.

HOW IT WORKS:

EE-3-SO₄ is thought to have three main effects:

- 1 makes the heart beat more efficiently
- 2 recruits more fluid into the bloodstream from surrounding tissue
- 3 raises blood pressure



Primary stabilization unit



Field hospitals



Hemoclear solution:

On site management due to local collection, rewashing and infusion of lost blood cells

Traditional model to throw away and replace blood after surgery or trauma

Blood loss leads to low levels of red blood cells (RBC)



Wound fluid with RBC is disposed as chemical waste



Buy from blood bank allogeneic (donor) RBC units



Blood Transfusion: Major challenge in casualty management

Supply

Costs

Availability

Side effects

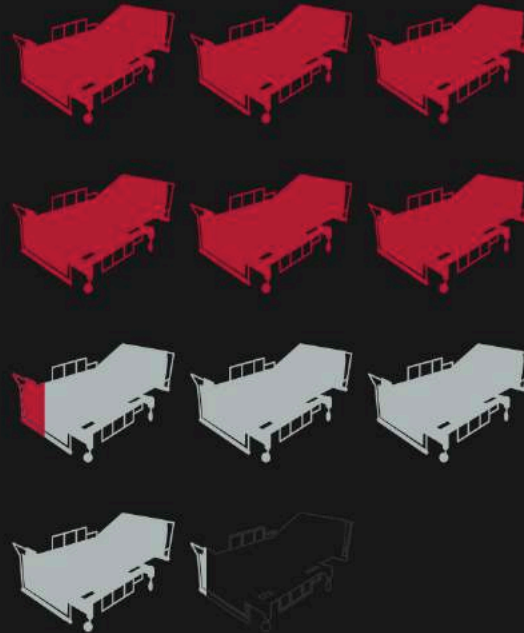


Typically, blood transfusions are grossly overused

Evidence-based medicine: Save blood, save lives, NATURE 2015



Reducing the blood used for transfusions by nearly one-quarter saved the hospital US \$1.6 million per year.



The average length of stay for patients who received transfusions went from 10.1 days to 6.2.



Mortality among people who had transfusions fell from 5.5% to 3.3%.

Retaining Red Blood cells by complex Cell Savers: mission impossible in casualty management

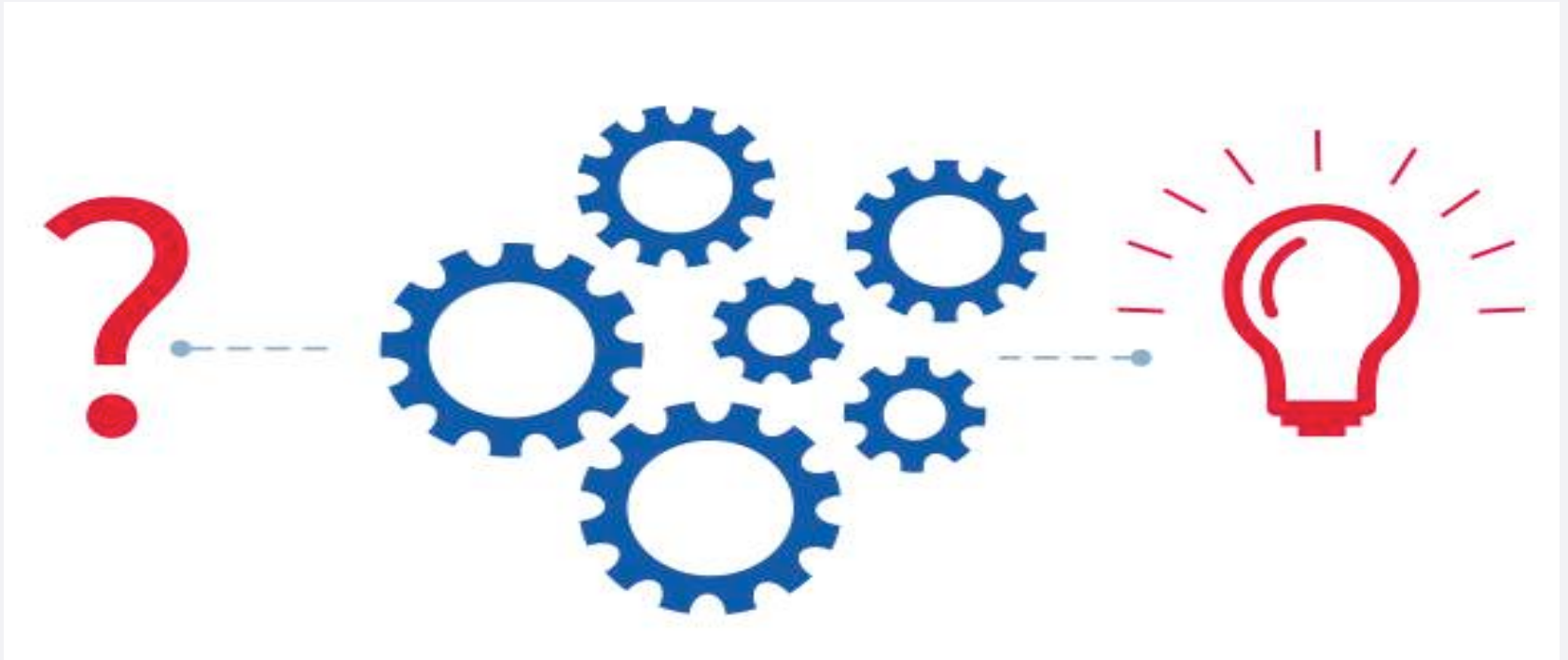
Complex

Costs

Availability

**Skilled
people**



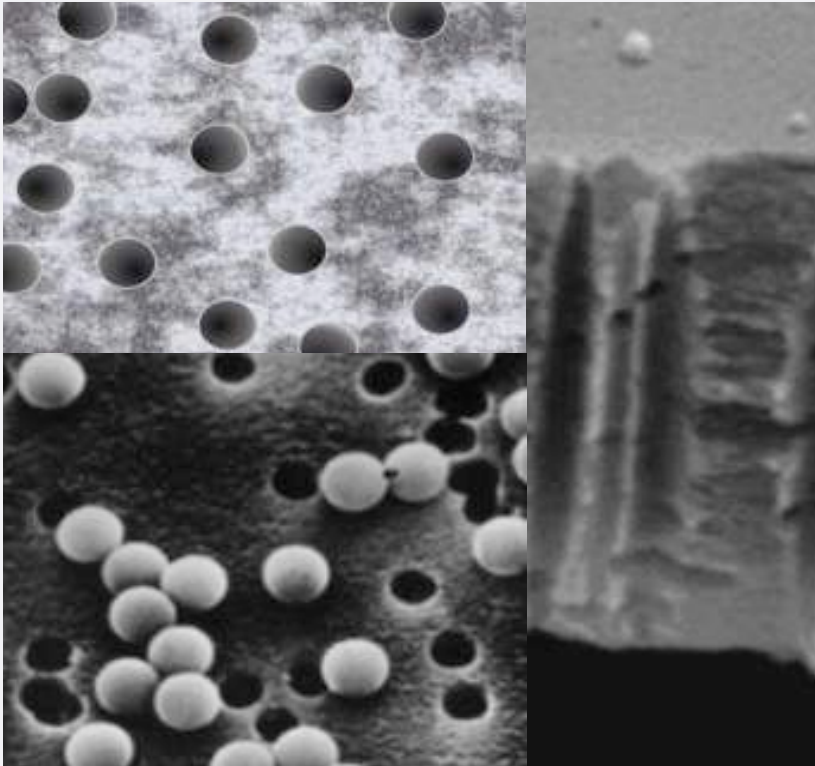


Solution:

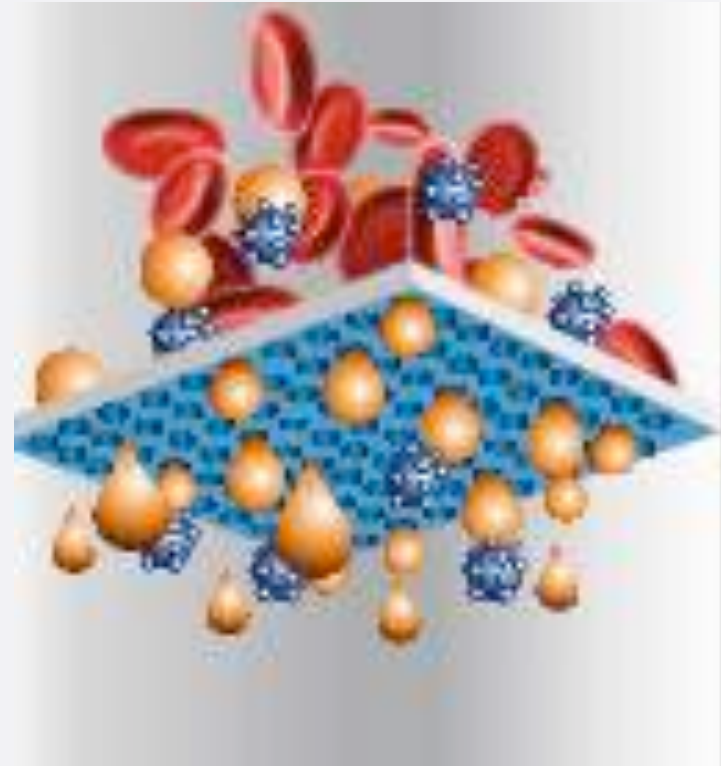
Hemoclear retains **own
bloodcells from lost blood**

Complex Technology results in easy to use device by gravity force only

Nanotechnology based microfiltration



Cartridge based disposable device



Hemoclear: Western World

Focus on cardiac surgery

Article

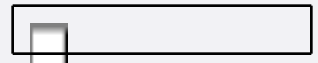
Blood Conservation in Cardiac Surgery: In Need of a Transfusion Revolution

Robin Varghese, MD¹, and Jeffrey Jhang, MD¹

Seminars in Cardiothoracic and
Vascular Anesthesia
2015, Vol. 19(4) 293–301
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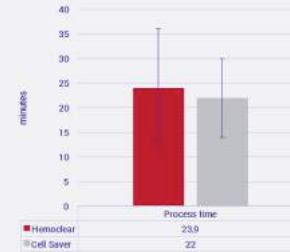
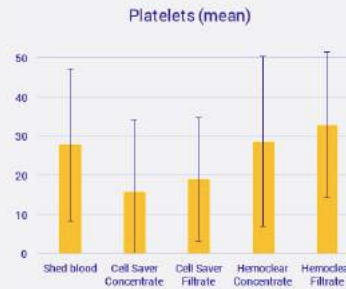
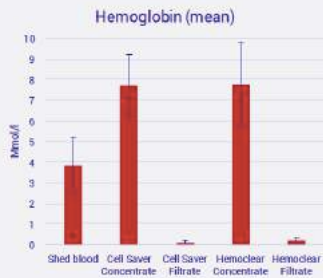
- **Blood transfusion** is the **most common procedure** in cardiac surgery.
- Increasing evidence exists that **excess transfusions are harmful to patients.**
- Transfusion reactions and complications, including infection, immune modulation, and lung injury, **are known complications but underreported**



HemoClear: **Comparable** to Cell Saver Gold Standard

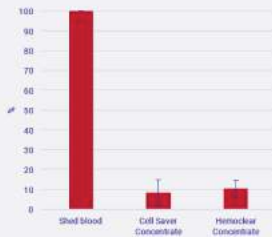
In-vitro comparison HemoClear vs. Cell Saver

Best to be increased

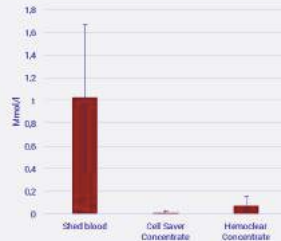


Best to be reduced

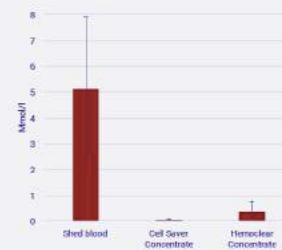
% of total Free Hb



C4



C3



Shows strong results

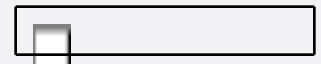
Comparable results for beneficial blood components

- Hb/red blood cells
- Platelets



Comparable results in eliminating unwanted components

- Total Load of Free Hb
- Complement 3 & 4
- Potassium



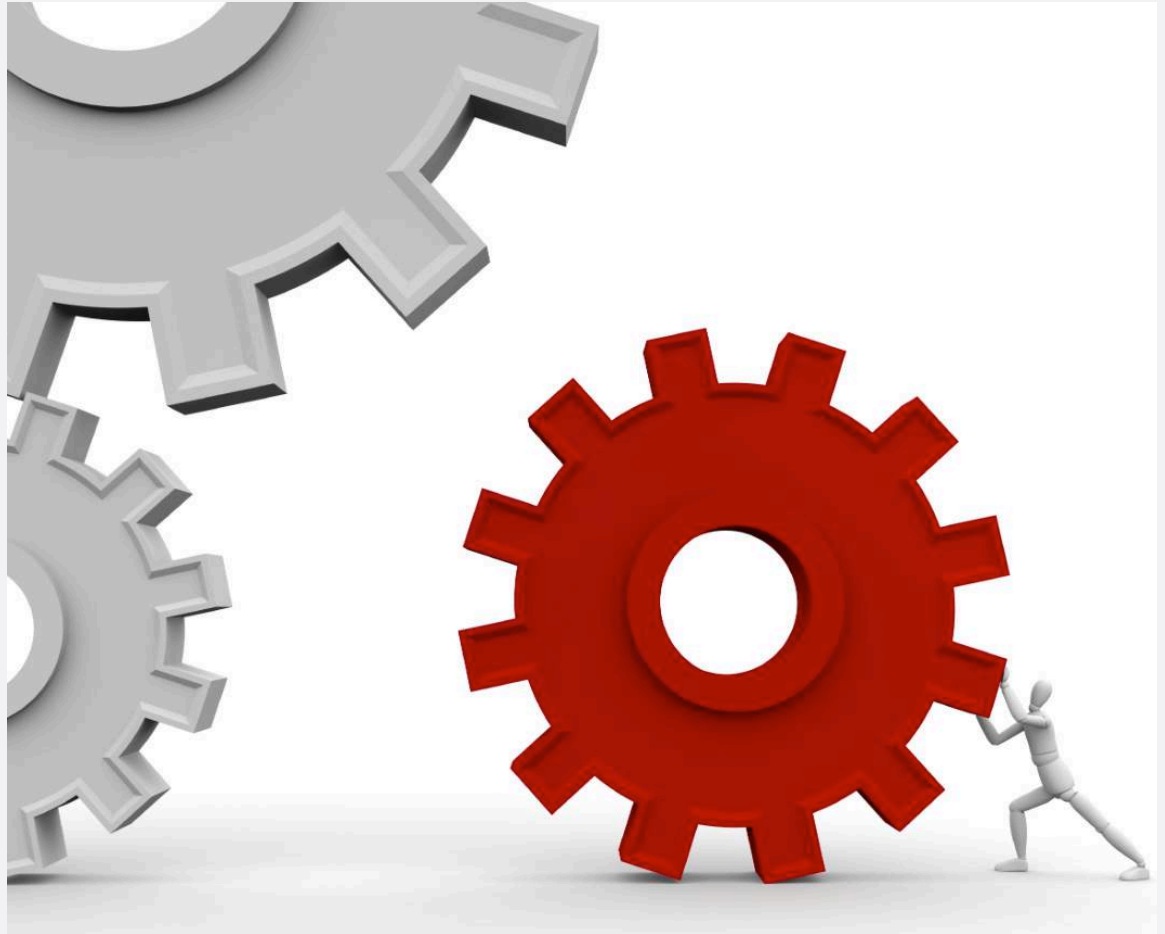
How does it **Work** ?

Simple

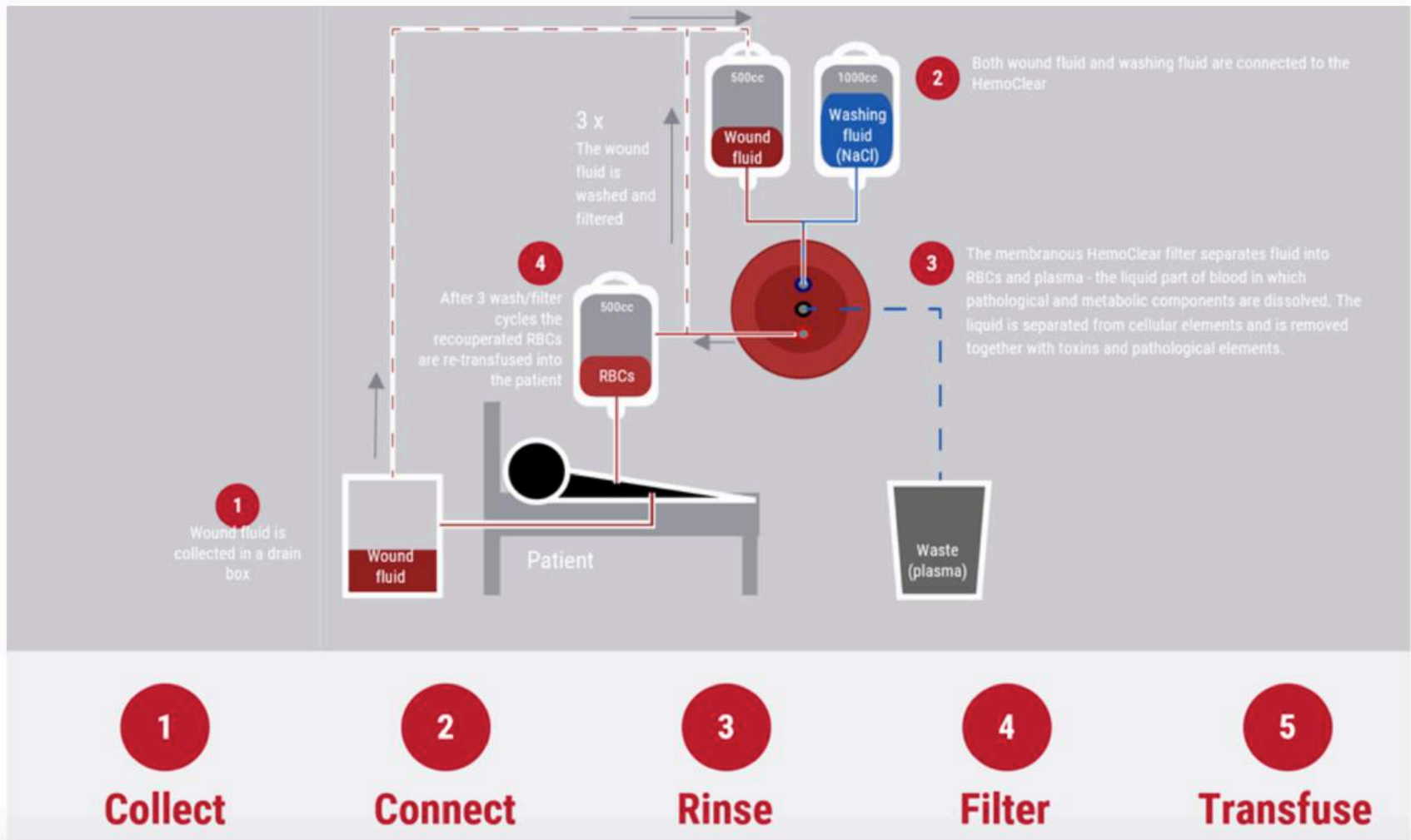
Gravity
only

Anywhere

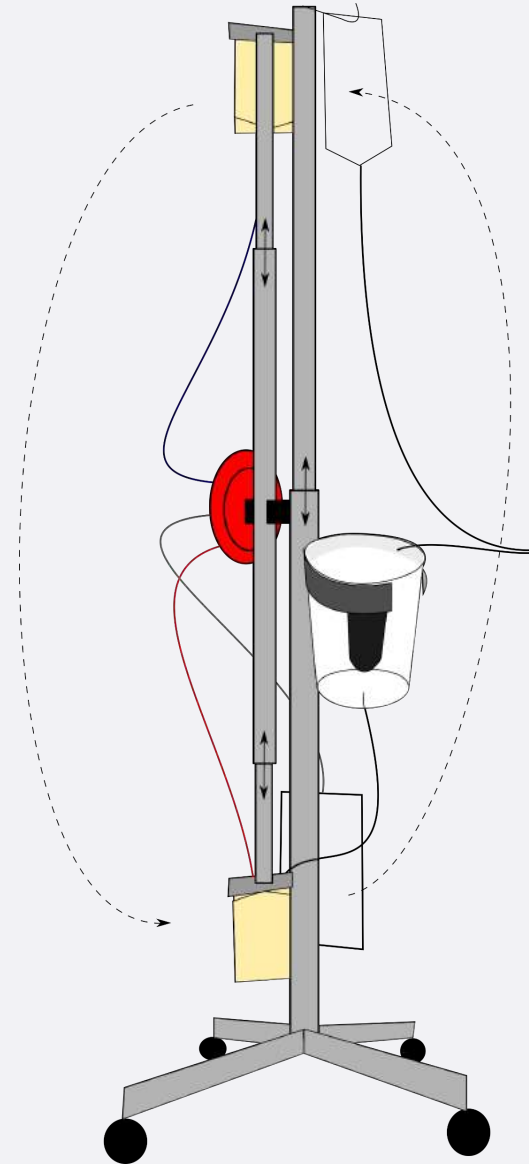
Disposable



How does it **Work** ?



www.Hemoclear.com



Lost blood

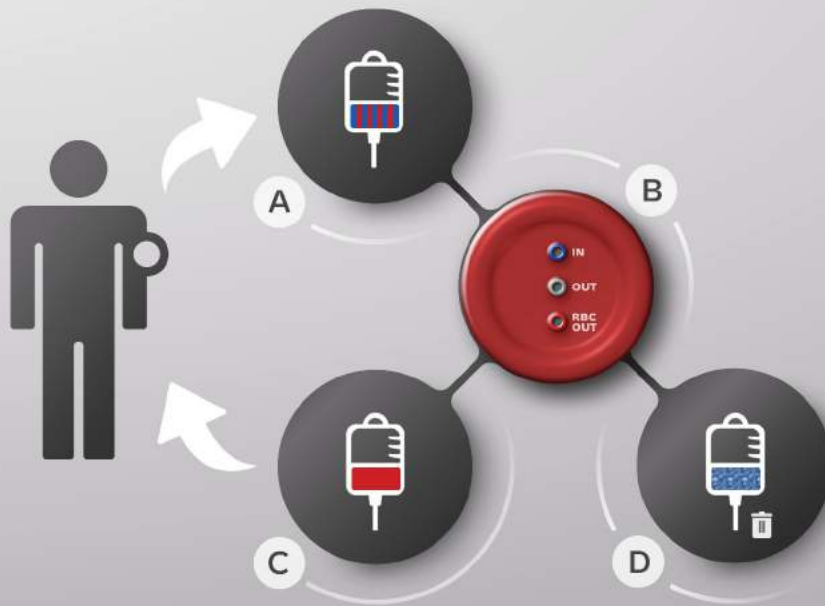
Waste

Retained washed RBC's

Hemoclear could have major implications for treating trauma, from battlefield injuries to life threatening hemorrhage following any injury on site.



HemoClear changing the paradigm for transfusion



01 Patient benefit
Appeals as a “waste not” product and delivers a clear treatment benefit to patients

02 Ease of use
Disposable device based on gravity, simple process with no need for training

03 Financially attractive
Delivers a clear cost advantage to the hospital, compared to transfusion



Thank you.