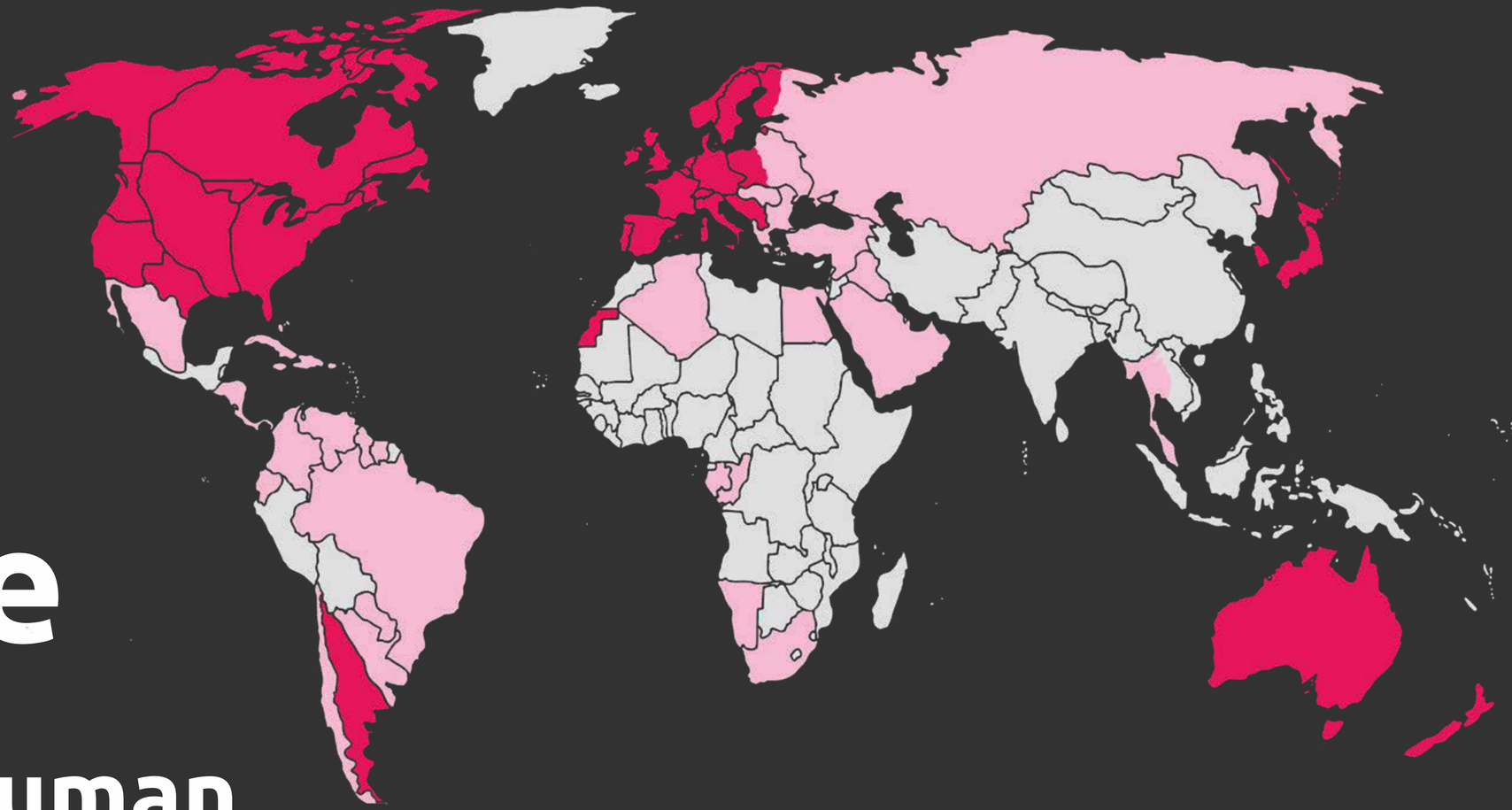
bloop

the Challenge



Huge lack of human blood reserves hold up Millions of surgeries in emerging economies.

Availability of blood reserves worldwide

< 5 Units on 1000 people

Over

40 Million people can not undergo surgery because the risk of blee-ding to death.

*http://www.who.int/bloodsafety/en/Blood_Transfusion_Safety.pdf

Dejen, Äthiopien. 2015

Kabale, Uganda

In emerging economies

1.2 Million people died in 2015 of major bleeding during surgery.

*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3218550/

the Current practise

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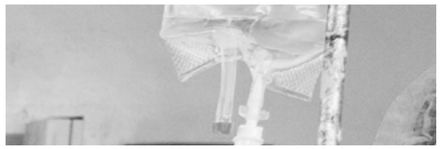
To safe lives, in countries with the lowest medical standards, surgents try to recycle the wound leaking blood.

In some nations there is **currently no possibility** to recyle the wound blood

Dejen, Ethiopia

In others, like Sub-Saharan Africa, **the high risk 'soup-ladle' technique is used.**



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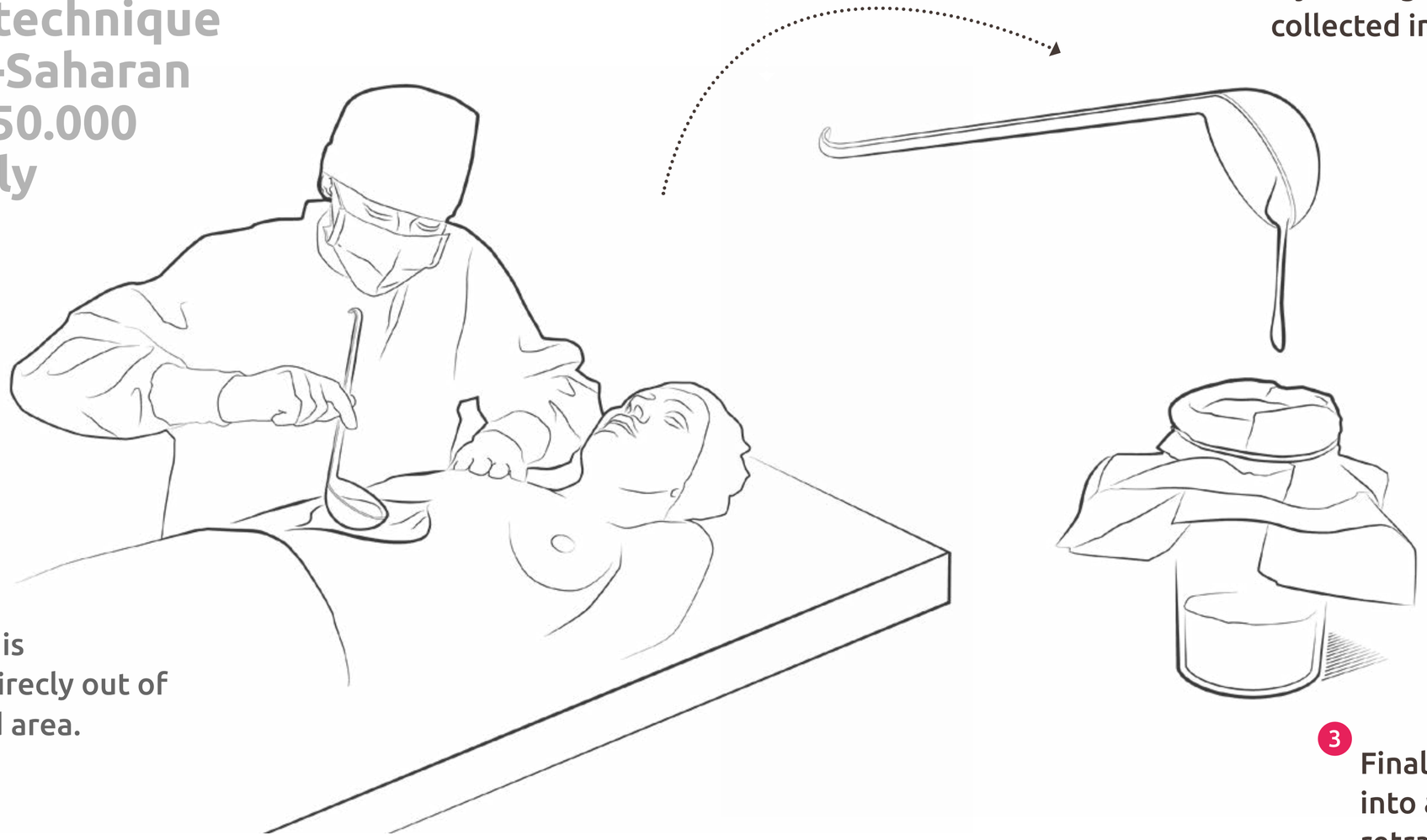
The current practise

The ‘soup-ladle’ technique is applied in Sub-Saharan Africa alone in 150.000 surgeries annually



1. The blood is scooped direcly out of the wound area.

2. The blood is filtered trough some layers of gauze and collected in jar.

3. Finally it is filled into a blood bag for retransfusion.

*www.ncbi.nlm.nih.gov/pmc/articles/PMC3218550

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But is it actually possible to collect the leaking wound blood and give it back to the patient safely?

In high income countries

modern maschines collect the blood, clean it and give it back to the patient.

*https://www.paracelsus-kliniken.de/uploads/pics/Haacke__Michael.jpg

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What kind of light-tech solution could replace the unsafe ‘soup-ladle’ technique?

lack of blood reserves

-expensive (about 70$ for 1 blood unit)
-single use
-continuous supply
-requires cooling

'soup-ladle' technique

-risk of blood clotting
-risk of infection
-5 people required
-takes 30 minutes to salvage blood

new effective solution

-10$ investment
-reusable
-sterilizable
-mobile

-filters clots and microaggregates
-secure closed system
-1 person required
-takes 5 minutes to blood salvage

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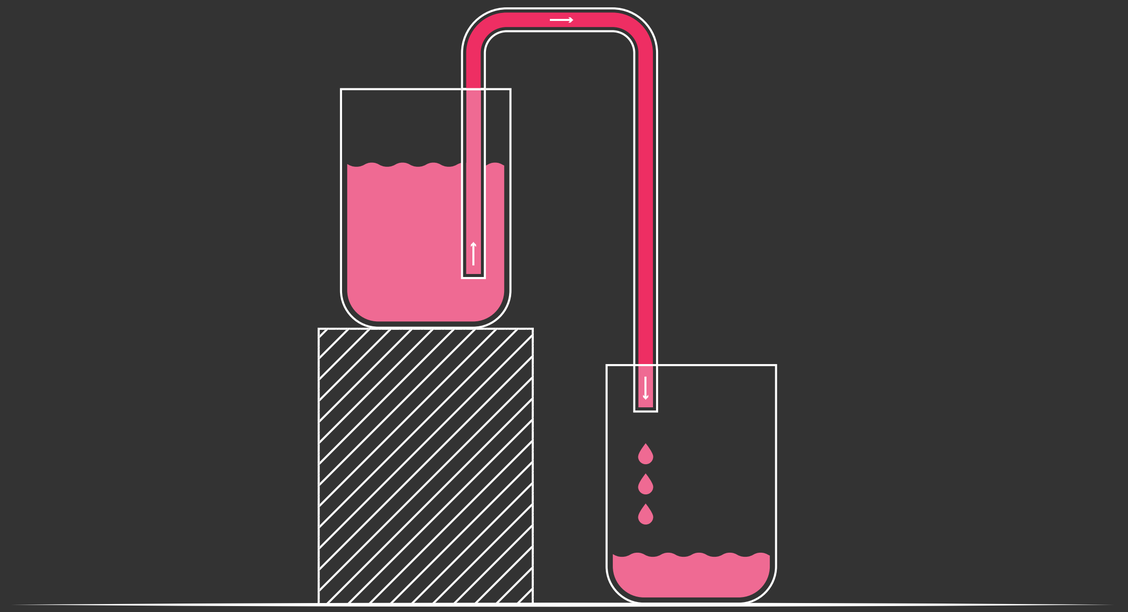
The simple physical principle of siphoning has let to the light-tech solution.



The reusable 10 Dollar device: bloop©

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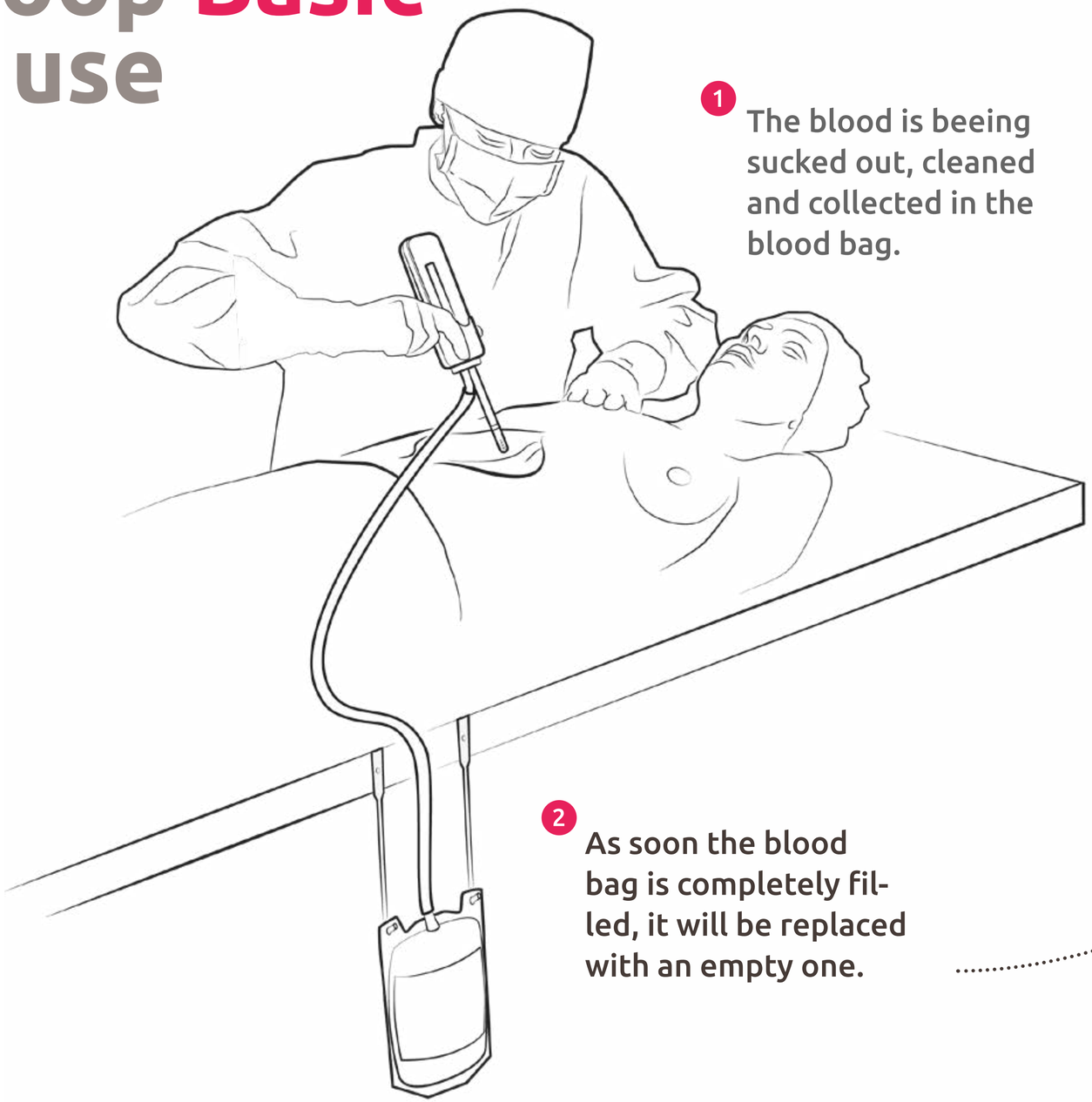
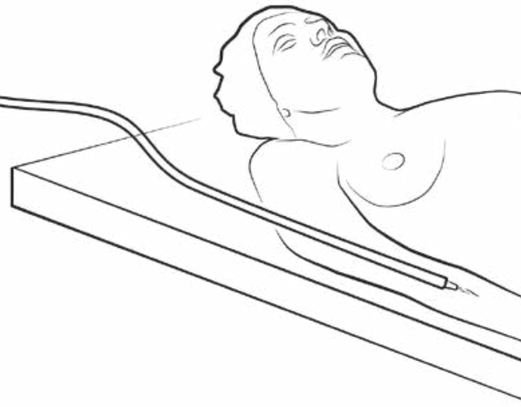
Bloop **Basic** in use



1 The blood is beeing sucked out, cleaned and collected in the blood bag.

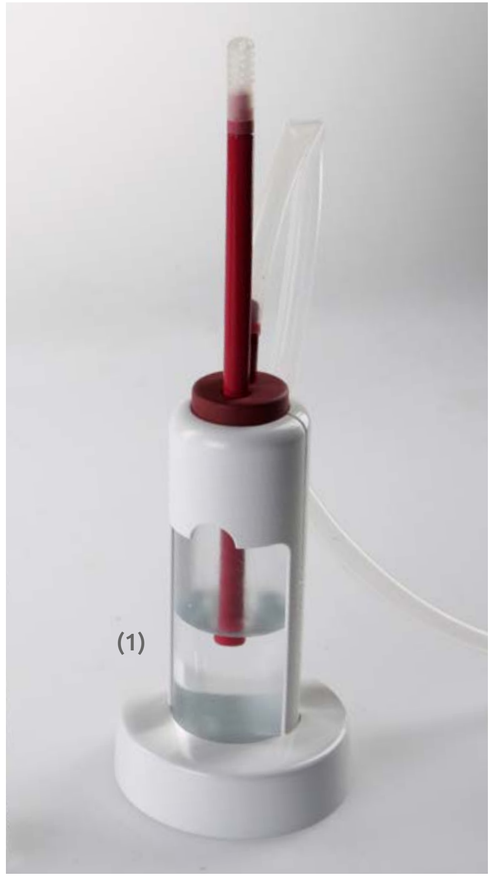
2 As soon the blood bag is completely filled, it will be replaced with an empty one.

3 Already during surgery the collected and cleaned blood can be given back to the patient.



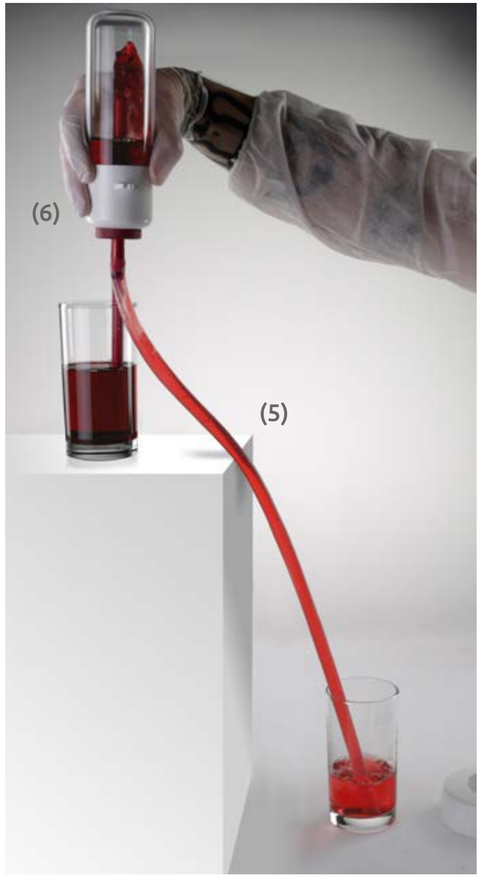
The process

Blood thinning medicine (1) is already inside the vessel



of the device. As soon the hose (2) is disconnected from the clamp (3) the blood thinning medicine will flow inside the empty blood bag (4). Due to this flowing

'Starter liquid', gravity (5) is created which starts to suck out the wound blood (6). There is still the same liquid



level inside the vessel (7), so that a continuation of the suction process is possible anytime.

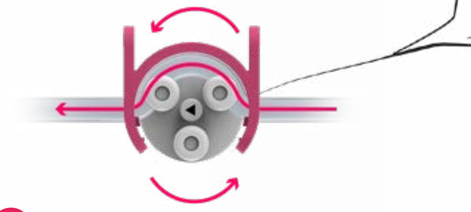
Bloop Plus: an extension module

For suction of even smaller amounts of blood

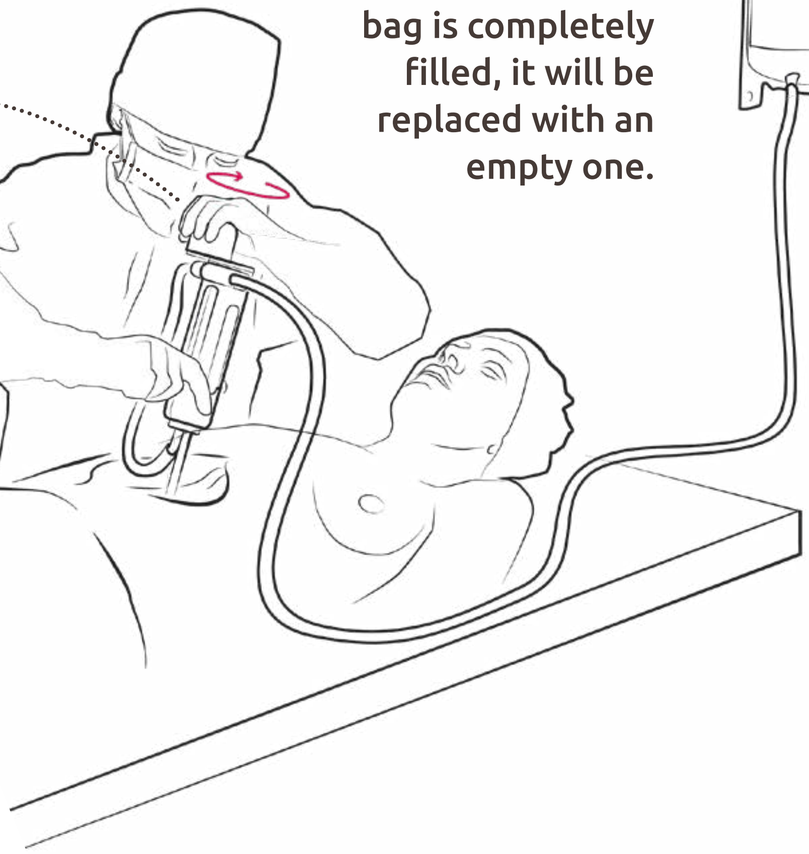
Works without 'starter liquid'

Ideal for mobile use

Bloop Plus in use



1 By turning the hand crank the blood is beeing sucked out. The rotating wheels are squeezing the hose. This creates the suction pressure.



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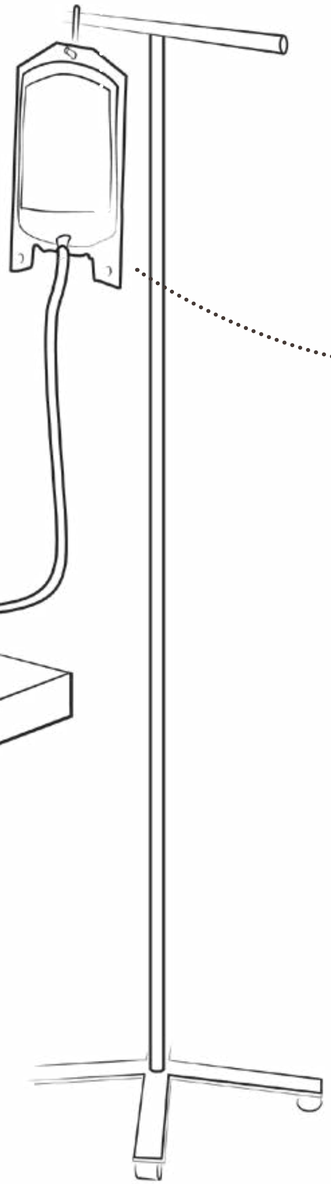

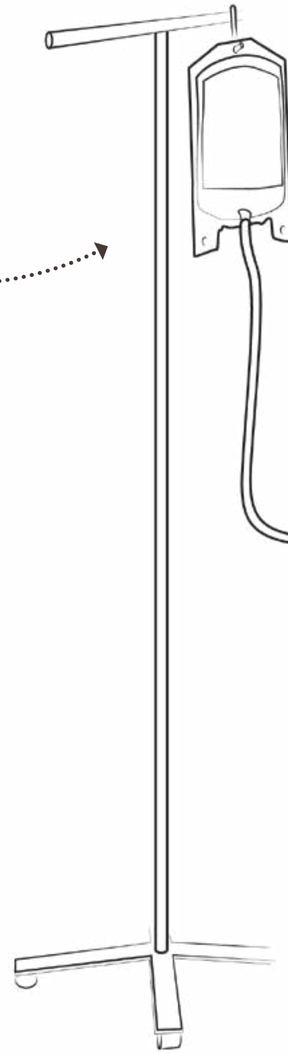

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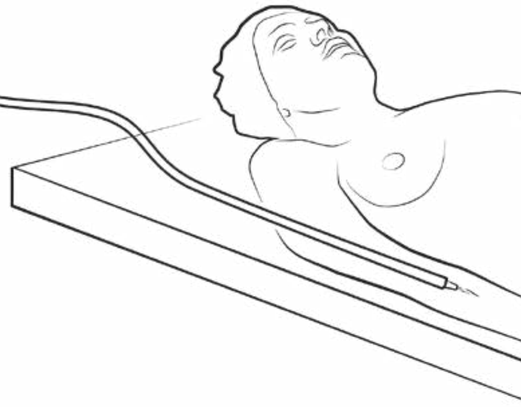


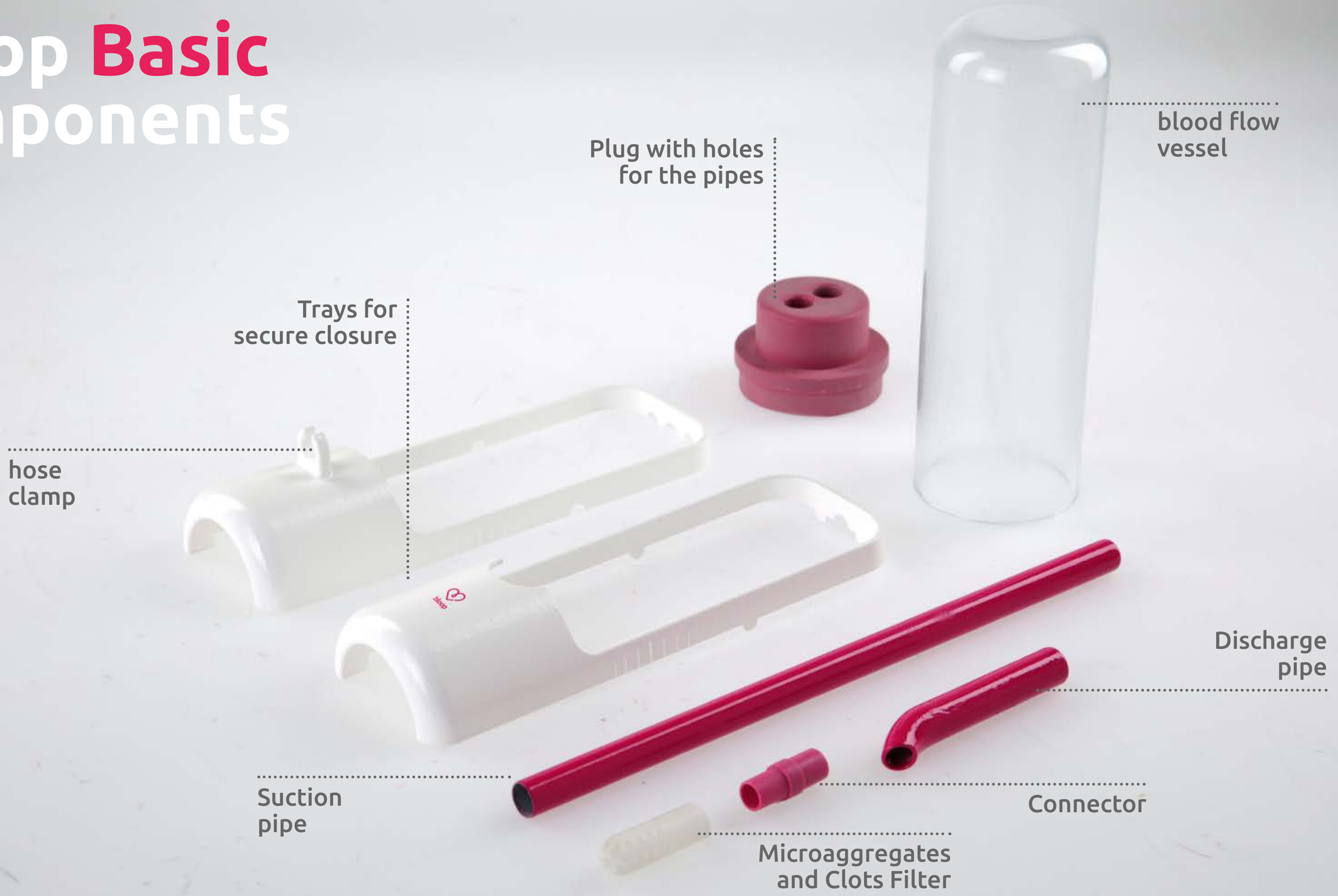
Bloop **Plus** components

Hand Crank

Peristaltic Pump

Pressure clamp for blood hose

Bloop **Basic** components



With improved funding of medical facilities, Bloop can be extended to:

Bloop Basic©

Low investment,
runs without
electricity

10 Dollar

Bloop Plus©

More
applications

+15 Dollar

Bloop Advanced©

Energy available,
blood strengthening,
more applications

+60 Dollars

Bloop High-End©

Western standard of quality,
application:
mobile - stationary - postoperative

about 2000 Dollars

Estimated prices for 250.000 units per year

What will be the next steps for developing Bloop?

Plans for 2018

Prototyping with FDA materials

Fieldtesting

Bloop publicity campaign

Plans for 2019

Production and destribution of Bloop Basic and Bloop Plus

Building of partnerships

Thank you

for the attention!

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