



## CASE STUDY

EMERADE

**Emerade**<sup>®</sup>

Your emergency aid

## AN INTUITIVE 2-STEP INTRAMUSCULAR AUTO INJECTOR FOR THE EMERGENCY TREATMENT OF ANAPHYLAXIS

The Emerade<sup>®</sup> Auto Injector is an intuitive disposable 2-step auto injector designed to deliver adrenaline via intramuscular injection during emergency use. The exterior of the device has a simple and sleek industrial design with the aim to minimize confusion for users. To achieve the penetration force required for an intramuscular injection while still ensuring the dosage is delivered correctly and needle protection mechanisms are in place, the Emerade Auto Injector is equipped with an advanced 3 spring technology. The device is also available in 3 doses (150mcg, 300mcg, 500mcg), with each recommended for patients of different bodyweights to maximize efficacy.

Emerade is currently a Prescription only Medicine (PoM) that is available on the market in the UK, Germany and Sweden. Shortly after its official launch, the various competitive advantages this Adrenaline Auto Injector (AAI) provided became evident quickly. Emerade was developed by Medeca Pharma, and its auto injector was developed by SHL in co-operation with Medeca.

## Medeca Pharma AB

### MEDECA PHARMA

Region  
Global

Industry  
Allergy

Solution  
Intuitive Industrial Design  
Longer Needle  
3 Dosage Options  
3 Spring Technology

Website  
www.emerade.com

## THE CUSTOMER

Medeca Pharma is a Swedish pharmaceutical company specialized in allergy since 1991. The company has over 15 years experience of AAls and anaphylaxis.

## THE CHALLENGE

As a company specializing in anaphylaxis, Medeca has continuously engaged allergy specialists and patients to gather feedback to help enhance device usability and dose efficacy. From the collected data, Medeca observed a need for a more intuitive injector device that was simple enough to be administered safely and properly, even when used in an emergency. Studies also showed an emerging need for a longer needle in order to increase the likelihood of an intramuscular injection and to facilitate a faster time to peak adrenaline. Finally, the range of potential patient body types (e.g., child versus adult) demanded an auto injector that offered a range of doses as well as a higher dose option.

Medeca wanted to incorporate all of these vital traits into their next-generation AAI, an adrenaline auto injector that would surpass its predecessors as well as competitor devices on the market.

## THE SOLUTION

Medeca chose to approach SHL with their desired specifications to develop this new AAI, called Emerade, because of the strong in-house design and manufacturing capabilities and established track record SHL had to offer. SHL was already one of the market leaders in designing and manufacturing auto injectors and pen injectors with unique industrial and mechanical designs, qualities key to achieving Medeca's anticipated results.

One of the first requirements was to have a device label with clear instructions that could be easily followed, even in emergencies. After experimenting with various shapes, SHL industrial designers developed a unique, rectangular-oval shape that maximized both the space for the required mechanical parts inside the device and the surface space for label instructions on both sides of the device. Several tests and simulations were conducted to find the shape able to withstand the most force. The rectangular attribute of the shape also granted the device a roll-resistant feature.

Extruded ridges on the cap were added to assist with uncapping, and they can also be used as indicators for which end of the device to uncap. In addition, both the body and cap of the Emerade device

were specifically designed to be white to minimize distraction and to avoid confusion for the user.

Because of the optimal space provided by the outer shell and innovation related to spring dimensions, the three-spring technology was successfully integrated into the device.

## THE RESULTS

With its sleek white exterior and simple two-step use, the Emerade Adrenaline Auto Injector successfully incorporates the intuitiveness allergy specialists seek. The robust three-dose device option enables prescribers to choose the recommended dose based on a patient's body weight, and the device is equipped with either a 16-mm or a 25-mm needle to ensure that more patients receive an intramuscular injection.

Designed for safety, the needle inside the Emerade device is permanently hidden before, during, and after the injection. An audible, visual, and tactile feedback system is also in place to provide improved guidance to the patient during injection. Finally, the compact three-spring technology enables the device to penetrate and deliver the required intramuscular injection successfully.

A usability study on the accuracy of the use of adrenaline auto injectors in a simulated emergency demonstrated that

# A RELIABLE 2-STEP ADRENALINE AUTO INJECTOR DESIGNED TO MEET PATIENT NEEDS

“The allergy specialists told us they needed an auto-injector that is easier to use, has a longer needle and higher dose. We developed Emerade on their insights and the positive feedback now shows Emerade solves a medical need.

- Ingegerd Larsson  
CEO, Medeca Pharma



“Balancing customer requirements and patient usability was a real challenge, but through good collaboration between design & development, we found a way to succeed.”

- Anders Boström  
Design Engineer,  
SHL Group

all of the participants successfully administered Emerade with label instructions. Participants also took significantly less time to administer Emerade compared with the time required to administer two other competitor products. If requested, a needle-less trainer is also available as part of the training kit to be used for practice.

Overall, the Emerade Adrenaline Auto Injector is a true success and has revolutionized the AAI market with its competitive traits. Emerade is now on the market in the UK, Germany, and Sweden and is currently licensed by Valeant Pharmaceutical International.

#### KEY PRODUCT FEATURES:

- › 2-Step Operation
- › Available in 3 Doses (150mcg,300mcg,500mcg)
- › Longer Needle Length for IM Injections (16mm or 25mm)
- › Permanently Hidden Needle
- › Audible, Visual & Tactile feedback

