

ADRENALINE auto-injectors

The Pan Mersey Area Prescribing Committee recommends that patients or carers, or both, are trained and understand optimal use of their adrenaline auto injector device and are advised to carry two adrenaline auto injectors at all times.

SAFETY

Intramuscular injection is the preferred route of administration of adrenaline in the treatment of anaphylaxis in order to obtain a rapid response [1,2]. Several factors may affect whether adrenaline reaches the muscle layer. These include needle length, the skin-to-muscle depth, the angle of placement on the skin, and the force used to activate the device [2,3].

Training is of paramount importance and routine switching of devices is not recommended. Device switching may only be considered where it is fully supported with training for the patient or carer, or both on the optimal use of the alternative auto injector device. Supply chain problems may prompt demand for device switching at short notice; the following resources may be useful in supporting a patient or their carer but are not a replacement for full training.

Product	Patient information	Educational material
Emerade	Emerade pre-filled pen	<ul style="list-style-type: none"> > Patient brochure > Instruction video
EpiPen and EpiPen Jr.	EpiPen and EpiPen Jr auto-injectors	<ul style="list-style-type: none"> > User guide and video
Jext	Jext pre-filled pens	<ul style="list-style-type: none"> > Web resource > Video demonstrations

Table 1 Information resources for patients and their carers [4]

Delivery of adrenaline under the skin instead of into a muscle may delay the response to treatment. In the absence of clinical improvement or if deterioration occurs after initial treatment, a second injection may be administered 5–15 minutes after the first injection. When considering treatment, because of the uncertainty over drug delivery, it is recommended that patients should carry two auto injectors at all times [2, 5, 6, 7, 8, 9].

All three adrenaline auto-injector preparations are licensed for immediate self-administration in anaphylaxis with the same dose. The dose should be determined by a specialist allergy service and, depending on the patient, may need to be increased. Non-specialist clinicians may prescribe an appropriate adrenaline auto-injector before a specialist service appointment based on their own clinical judgement [9]. For guidance of strength to be prescribed refer to BNF <https://bnf.nice.org.uk/> CBNF <https://bnfc.nice.org.uk/> or Summary of Product Characteristics (SPC) <https://www.medicines.org.uk/emc>

For healthcare professionals in a clinical setting:

In all healthcare settings, giving adrenaline from an ampoule by syringe and needle is preferred in an emergency, since auto-injectors will not allow delivery of an age/weight appropriate dose in most patients [1]

Guidance on the choice of needle length for intramuscular injections suggests 25 mm as the best and suitable for all ages with the exception of pre-term infants and neonates up to 44 weeks post-menstrual age in which case a 16 mm needle length is most appropriate [1]. Post-menstrual age (PMA) is the sum of actual age in weeks and gestational age in weeks. For example, a 5-week-old baby born at 32 weeks gestation has a PMA of 37 weeks.

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For self-administration: there is no currently marketed auto-injector with a needle length of 25 mm, table 2 summarises needle lengths of the currently available auto-injector devices. Needle length may be an important factor to consider when choosing a suitable auto-injector [4] but is only one of a number of other considerations that will affect delivery of an intramuscular injection. Current evidence may suggest needle lengths of auto-injector devices are not adequate to ensure intramuscular injections in most patients, but it does not take into account projection of adrenaline beyond the end of the needle by the firing mechanism of the device [3].

	150 micrograms	300 micrograms	500 micrograms
Jext®	13 mm	15 mm	N/A
Emerade®	16 mm	23 mm	23 mm
Epipen®	13 mm	15 mm	N/A

Table 2 Needle length of currently available auto-injector devices [5, 6, 7, 8]

References

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