



# Pen work

**Dr Shirin Lakhani** on automated injector pens in aesthetic treatments

Automated delivery systems in medicine have been available for many years, from syringe drivers to Insulin injectors and Epipen. In aesthetics, we are seeing more devices to improve dose accuracy, delivery and injection experience for both practitioner and patient. We have seen click syringes for botulinum toxin and Restylane Skinboosters as well as mesotherapy guns and the Artiste controlled injection system. But the last two years has seen the introduction into the UK of small hand-held battery powered devices which are portable and easy to use. In this article, I discuss the use of Teosyal Pen and, more recently, the Juvapen in my practice.

When I was first shown the Teosyal Pen, my initial reaction was "why on earth would I need that?" I consider myself experienced in injecting. Prior to entering the

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world of aesthetics, I was an anaesthetist. I considered a syringe an extension of my hand, and felt I knew how to deliver a controlled injection. Fast-forward 18 months and I now consider it an essential tool in my practice. So when offered the chance to trial the Juvapen, I did not have the same hesitation I had experienced when encountering the Teosyal Pen. Both devices are manufactured in Switzerland by JuvaPlus, a company specialising in the production of wireless, motorised devices.

Assisted injection devices are not a new concept. In medicine, delivery systems have been used successfully by members of the public (Insulin Pens, Epipens). In aesthetics, we have had mesoguns and smart click syringes (Restylane Vital and TSK 3dose syringe).

So what are the benefits of these new automatic injectors? And what about the downsides?



### THE TEOSYAL PEN

The Teosyal Pen was the first cordless, motorised hyaluronic acid delivery system. Although the rights to the pen were bought by Teoxane, it is compatible with other brands of filler. It provides a constant flow when compared to manual injections, regardless of tissue resistance or gel viscosity. The pen has two modes of injection, flow mode and drop (bolus) mode, and three speeds or drop sizes depending on the mode. It can be used with needle or cannula. It requires a custom syringe holder called a Teolink which is compatible with many 1ml filler syringes, providing it is possible to remove the plunger rod and finger grip.



On first handling the device, I found it a little awkward, when compared to holding a syringe, but this was quickly overcome and I found it very easy to become accustomed to using the device. Surprisingly, I also found that my product seemed to go further, and I had better aesthetic outcomes. In particular, I found injection more controlled and precise when treating areas like tear troughs and lips, and much better than manual injection when carrying out micro-bolus, skin-booster type treatments. From a patient perspective, injections were more comfortable, with reduced swelling.

A worry I had initially, was the inability to aspirate prior to injection of filler. Slow low-pressure injections make occlusion of a blood vessel less likely. Regardless, one should always be vigilant for signs of vascular occlusion when injecting, be it manually or with a device.

### JUVAPEN

Released in the UK in Spring 2016, the Juvapen is the first automated, cordless injector device for botulinum toxin. It is compatible with all the currently available toxins and has six preset doses and requires custom 1ml syringes. It allows for more precise dosing than with manual injection. The

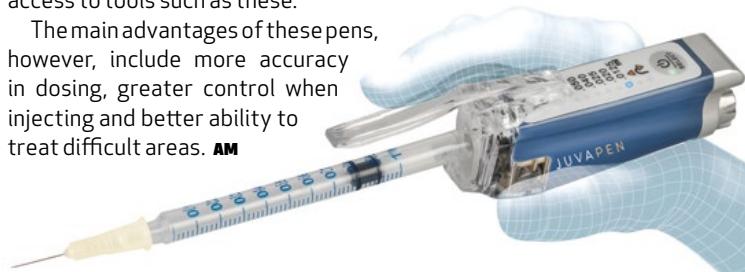


lowest preset volume injectable is 0.0125ml which, when using standard dilutions of the toxins, equates to 0.5IU Botox®/Bocouture® or 2.5IU Azzalure®.

Having been used to using the Teosyal Pen, I found this device extremely easy to use. It allows one to focus on the injection site without the need to look at the syringe. There is minimal risk of over/under-dosing the patient, as there is less than a 2% margin of error, compared with up to a 40% margin of error with manual injection. This allows for repeatability of dosage. A great benefit of this is in micro-dose injection, in particular when treating the neck, perioral area, and hyperhidrosis. More accuracy equals less complications and more consistent results. Additionally, the controlled force of injection means less pain felt by patient and less swelling.

Critics of the devices have said that they may make it easier for novices to start injecting difficult areas. One should always appreciate one's own limitations when carrying out any treatment. There is no substitute for adequate training and experience. While the injector pens make the manual act of injecting easier, the practitioner still needs to use their judgement with product selection, site and depth of placement, as well as the amount that needs to be used. The injector pens are a tool to assist practitioners rather than devices to make novices feel overly competent. Unfortunately, there will always be people who practice outside their competence, regardless of whether they have access to tools such as these.

The main advantages of these pens, however, include more accuracy in dosing, greater control when injecting and better ability to treat difficult areas. **AM**



### REFERENCES

1. Carey W, Weinkle S. Retraction of the plunger on a syringe of hyaluronic acid before injection: are we safe? *Dermatol Surg* 2015; 41:340-346
2. Donnelly R. Injectable Delivery Systems. *Aesthetics* 2014
3. Bertossi MD et. Al. New Clinical Analysis and Device for Botox Injections. *J. Craniofac Surg* 2016
4. Liew S. Microbotox of the Lower Face and Neck: Evolution of a Personal Technique and Its Clinical Effects. *Plastic and Reconstructive Surgery Journal* 2015



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