

Online availability of neurotoxin and injectable cosmetics



Yumeng Li, MD, MS, Fabrizio Galimberti, MD, PhD, and Brian Morrison, MD
Miami, Florida

The number of patients seeking cosmetic procedures, particularly neurotoxins and fillers, is on the rise. The average age of these patients is between 35 and 50 years of age, with a noticeable trend of even younger patients (18-34 years of age) getting nonsurgical cosmetic procedures,¹ likely because of societal influences and social media. Of note, given the cosmetic nature of these procedures they are typically an out-of-pocket expense and can be quite costly. As ruled by the U.S. Food and Drug Administration (FDA), neurotoxins and injectable fillers, which are classified as prescription medications and medical devices, respectively, can only be sold to and operated by a licensed health care provider.² Although generally well tolerated and safe, neurotoxins and injectable fillers can have serious complications. Even when injected by licensed health care providers, there are reports of soft tissue necrosis, vision loss, embolization, and anaphylaxis.³ Unfortunately, there has been a growing trend of nonlicensed injectors providing cosmetic services without proper training and even under false pretenses.⁴ Such procedures have led to numerous reports of disfiguring granulomatous reactions, infections, tissue necrosis, stroke, pulmonary embolism, and even death.^{5,6} Moreover, there is a growing trend of self-injecting unregulated neurotoxins and fillers under the guidance of YouTube tutorials and online forums.⁷

A search of online vendors including eBay and Amazon was performed between April and June 2019. Within the same time span, a Google search was performed using the following keywords combined with the key phrase “for sale”: neurotoxins, Botox, Xeomin, Dysport, filler, hyaluronic acid, Sculptra, Radiesse, Juvederm, Restylane, Bellafill, Belotero, acid peel, PDO thread, and laser device. The first 60 listings were reviewed from each search

and revealed easy consumer accessibility to numerous neurotoxins and fillers without verification of provider status (Table I). The hyaluronic filler Otesaly Derm Lines (Otesaly, Guangzhou, China) was successfully purchased from eBay without the need to enter any medical license information. The product was shipped from Florida. The package arrived promptly and the content was sealed and unadulterated. Intriguingly, some of the products were available from within the United States, although most products were sold from international vendors. This represents an additional risk to patients given that imported products may be counterfeited with unclear short- and long-term risks and consequences.⁸ In addition, most vendors provided a detailed description of the product for sale without any indication of possible adverse reactions. For example, cross-linked hyaluronic acid was advertised as the best filler for “anti-deep wrinkles of face; shaping facial contours, chin fullness and lips augmentation; nasal plastic surgery” with the recommendation to inject “deep layer of dermis and/or surface layer of subcutis.” Notably, a few sellers added a disclosure statement indicating that their claims were not medical advice. In addition, instruments necessary to perform cosmetic procedures were also readily available. These included cannulas, syringes for stem cells/lipotransfer, liposuction aspirators, thread lifts, and laser units, including erbium and CO₂ fractional lasers. For example, the cost of a used erbium laser ranged from \$3000 to \$12,000 and the cost of a CO₂ fractional laser averaged \$7000 to \$10,000. Overall, the easy availability of cosmetic products and instruments favors illegal providers, ensures a constant supply of necessary material to such illegal injectors, and allows individuals to provide unsupervised treatment to patients.

To improve the safety of patients undergoing the aforementioned procedures, emphasis should be

From the Dr Philip Frost Department of Dermatology and Cutaneous Surgery, University of Miami.

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Reprint requests: Yumeng Li, MD, MS, Dr Philip Frost
Department of Dermatology and Cutaneous Surgery,

University of Miami, 1600 NW 10th Ave, RMSB 2023A,
Miami, FL 33136. E-mail: y.marina.li@gmail.com.

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Table I. Injectable and invasive cosmetic products approved by the U.S. Food and Drug Administration that were available for purchase from independent websites or online retailers, including eBay and Amazon

Brand	Generic	Available from within the U.S.	Lowest cost (\$)	Safety information available on cheapest site
BD	PRP vacutainer tubes	Yes	1.16/tube	Partial
Splendora	TCA 100%	Yes	1.3/mL	Partial
Skin Beauty	Glycolic acid 70%	Yes	0.56/mL	Partial
Aqualyx	Deoxycholic acid	No	55/tube	None
ACE Thread	PDO thread lift	No	6.38/piece	None
Restylane Refyne	Sodium hyaluronate	Yes	77.5/mL	None
Restylane Defyne	Sodium hyaluronate	Yes	86.5/mL	None
Juvederm Vollure XC	HA	Yes	220/mL	None
Restylane Injectable	HA	Yes	59.5/mL	None
Belotero Balance	HA	Yes	79.7/mL	None
Juvederm Volbella XC	HA with lidocaine	Yes	68/mL	None
Restylane Lyft	HA with lidocaine	No	76.4/mL	None
Restylane Silk	HA with lidocaine	No	78.6/mL	None
Juvederm Voluma XC	HA with lidocaine	Yes	102.2/mL	Partial
Restylane-L	HA with lidocaine	Yes	79.9/mL	None
Juvederm Ultra XC	HA with lidocaine	Yes	127.5/mL	None
Juvederm Ultra Plus XC	HA with lidocaine	Yes	127.5/mL	None
Sculptra	Poly-L-lactic acid	No	100/vial	None
Radiesse	Hydroxylapatite	No	160/1.5 mL	Partial
Artefill	PMMA, collagen, lidocaine	Yes	101/mL	Yes
Botox	Onabotulinum toxin	Yes	140/100 units	None
Xeomin	Incobotulinum toxin	Yes	115/100 units	None
Dysport	Abobotulinumab toxin	Yes	173/300 units	None

Most listings did not provide extensive safety information. Partial safety information denotes that some adverse reactions were listed without caution regarding serious side effects.

HA, Hyaluronic acid; PDO, polydioxanone; PMMA, polymethyl methacrylate; PRP, platelet-rich plasma; TCA, trichloroacetic acid.

placed on fortifying government regulations, improving practitioner qualifications, and empowering the public to make informed decisions regarding undergoing cosmetic procedures. For example, legislation should be in place to include dermal fillers as prescription-only medical devices. This would discourage the online sale of injectable medications and allow health practitioners to oversee the appropriate acquisition, distribution, and use of these products. In addition, there should also be tighter online surveillance of fillers being sold from other countries. Another step toward improving patient safety would be the formation of an interdisciplinary committee with dermatologists and representatives from other surgical specialties and health care providers to establish standards for cosmetic training. Similarly, legislators may consider a centralized registry of all practitioners who are approved to inject cosmetic products. Public education regarding the qualifications of their injectors and the appropriate sourcing and use of only FDA-approved products needs to be emphasized as well. This would empower and

educate patients to ask questions about the qualifications of the injector and the sourcing of products. Last but not least, the development of a platform and monitoring committee to report providers using ill-sourced injectable products and adverse events should allow better monitoring of patient safety and outcomes.

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