Monitoring U.S. E-Cigarette Sales: National and State Trends

Methods

Data Source

E-cigarette sales data were acquired by the CDC Foundation from Information Resources, Inc. (IRI) (www.iriworldwide.com/en-US), a major commercial aggregator of retail sales data. Data are representative of the total marketplace (excluding vape shops and online sales) as a combination of census reporting retailers and projections for non-participating retailers.

IRI sales data provide information on Universal Product Code (UPC) sales from two main channels: convenience and multi-outlet. The convenience channel includes convenience stores and gas stations (e.g., 7 Eleven and Circle K). Multi-outlet includes food stores (e.g., Harris Teeter, Shaw's, and Wegmans), drug stores (all national chain and independent drug stores, excluding Rx sales), mass merchandiser outlets (e.g., Target, Kmart, Shopko), Walmart stores, club stores (BJ's and Sam's club), Dollar stores (Dollar general, Family Dollar, and Fred's chains), and Military sales (Defense Commissary Agency). IRI provides sales data for the multi-outlet channel in addition to food stores and drug stores, separately. Since multi-outlet data include food and drug stores, in addition to the other outlets listed above, analyses were restricted to multi-outlet and convenience channel data to ensure that all channels were captured but not duplicated. Sales from the Internet and tobacco-specialty stores, including vape shops, were not available.

Measures

Data from IRI consists of unit sales, dollar sales, and product characteristics for each UPC, such as product description, product type (i.e., whether a product is a device or an accessory and whether it is disposable or rechargeable), type of devices, type of accessories, flavor, nicotine, and number of items per unit.

E-cigarette products were categorized as one of the following product types: prefilled cartridges, disposable devices, and e-liquids. Prefilled cartridges include tanks, cartridges, and pods used in rechargeable and reusable e-cigarette devices; the cartridges are not intended to be refilled after the liquid has been depleted. Disposable devices include non-rechargeable and non-reusable e-cigarette devices that are not intended to be refilled with e-liquid after being depleted; the device is disposed of once the e-liquid has been consumed. E-liquids are containers of the liquid used in e-cigarette devices, which typically contain a humectant (e.g., propylene glycol), nicotine, and flavoring. E-cigarette accessories and devices sold without e-liquids were excluded.

Furthermore, all e-cigarette products were assigned to one of the following flavor categories: tobacco, menthol, mint, all other flavors (i.e., all flavors other than tobacco, menthol, and

mint), and not available/applicable, using explicit flavor names. E-cigarette products were classified as tobacco-flavored if tobacco or a descriptor (e.g., traditional, original, classic, bold, blend) was explicitly mentioned in the name of the product's flavor. Flavors with a cooling sensation, such as "frost menthol" and "cool menthol," were classified as menthol. Mint-flavored e-cigarettes, such as "peppermint" and "wintergreen," were classified as mint. E-cigarette products sorted into the all-other flavor category included flavors such as fruit, clove/spice, candy/desserts/other sweets, chocolate, alcoholic drinks (e.g., wine, cognac, margarita or other cocktails), and non-alcoholic drinks. Flavors that combined mint and menthol (e.g., "minty menthol") were assigned to the mint flavor category; whereas, flavors that combined tobacco and menthol (e.g., "tobacco menthol") were assigned to the menthol flavor category (<1%). Flavors that combined tobacco, menthol, or mint with some other flavor (e.g., berry mint) were assigned to the all-other flavor category. Ambiguous or concept flavors that could not be readily identified (e.g., "fusion") (5.6% of sales) were searched online using relevant information on brands and product characteristics. These ambiguous flavors were then assigned to tobacco, menthol, mint, or all other flavors, based on their descriptions. Products with unknown flavor types were categorized as not available/applicable (<0.1% of sales). Products that contained cannabidiol (CBD) but did not contain nicotine were excluded from analysis (<0.1% of sales). Two researchers independently assigned e-cigarette products to one of five flavor categories and subsequently compared results. When disagreement occurred, researchers reviewed product descriptions from the manufacturer's website or from online retailers to classify flavors accordingly.

Analysis
E-cigarette unit sales were standardized and aggregated in 4-week periods. A standardized unit was equal to: 5 prefilled cartridges; 1 disposable device; 1 e-liquid bottle. Analyses were performed for total unit sales and the proportion of total unit sales by product type and flavor, using Stata (version16; StataCorp). All estimates presented in this data brief were independently quality control checked by a second analyst using SAS 9.4.