

3-107. Biomarkers of Exposure Among Exclusive and Recent Cigar Smokers Versus Never Tobacco Users: Population Assessment of Tobacco and Health Study Wave 7 (2022-2023)

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Abstract: Intro: Cigars (cigarillos, filtered, traditional) deliver substantial nicotine and toxic metals, yet population-level biomarker evidence for exclusive cigar users, especially by recency remains sparse. Prior studies show elevated biomarkers, with variation by subtype and flavor. Using nationally representative biomarker data, we estimate exposure biomarkers among exclusive recent cigar users versus never users. Methods: We analyzed adult Population Assessment of Tobacco and Health (PATH) Wave 7 (2022-2023) data, classifying participants as exclusive cigar users used on the day of biospecimen collection ("Today," N=44), one or two days before ("Yesterday/Day Before," N=35), or never tobacco users (N=691). Demographics and cigar use were summarized with survey weights. Weighted geometric means were calculated for urinary cadmium, lead, uranium, and cotinine. Survey-weighted multiple linear regression tested group differences in unadjusted and covariate-adjusted models. Results: Exclusive cigar smokers (N=79) were mostly male (80%), ≥55 years old (64%), non-Hispanic White (47%) or Black (29%), and had less than a college degree (66%). Nearly half (47%) reported annual household income LESS THAN \$50,000. Cigarillos were most reported, with 41.8% smoking at least one in the past 3

days. Among those reporting frequency in the past 3 days, 72.7% of cigarillo users smoked one cigarillo, whereas filtered and traditional cigar users smoked ≥2 (63.2% and 57.1%, respectively). Use was generally infrequent (LESS THAN 10 days/month). Flavored product use was common across types (cigarillos 94%, filtered cigars 85%, traditional cigars 67%). Compared with never users, "Today" smokers had higher geometric mean concentrations for cadmium (0.31 vs 0.16 µg/L, p=0.001), uranium (0.010 vs 0.005 µg/L, p=0.002), and cotinine (931.54 vs 0.14 ng/mL, p LESS THAN 0.0001), while "Yesterday" smokers had higher lead (0.30 vs 0.24 µg/L, p=0.04) and cotinine (199.44 vs 0.14 ng/mL, p LESS THAN 0.0001). Findings persisted after adjustment. Discussion: Exclusive cigar use was associated with markedly higher nicotine and metal biomarkers versus never use, even at low daily counts and intermittent patterns. High flavored cigar use reinforces concerns about appeal and sustained use. Despite modest sample size, these national data provide recent exposure profiles by recency of use. Elevated biomarker levels across cigar types and widespread flavor use highlight the importance of monitoring and regulation.