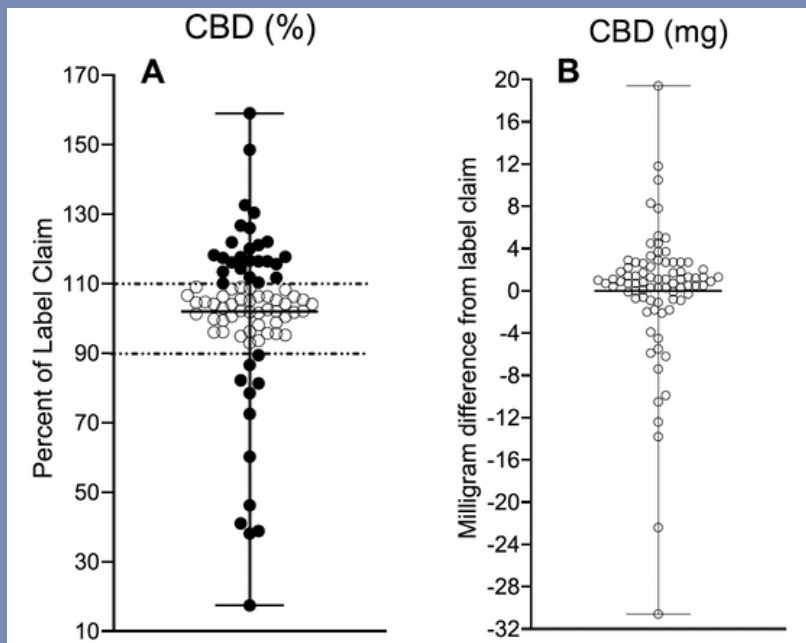


EVALUATION OF CBD PRODUCT CONTENTS

Across a series of studies, our team (project lead: Erin Johnson, PhD) analyzed 80 CBD oil-based products that were purchased in Kentucky stores and popular online retailers.

OVER-THE-COUNTER CBD PRODUCTS:

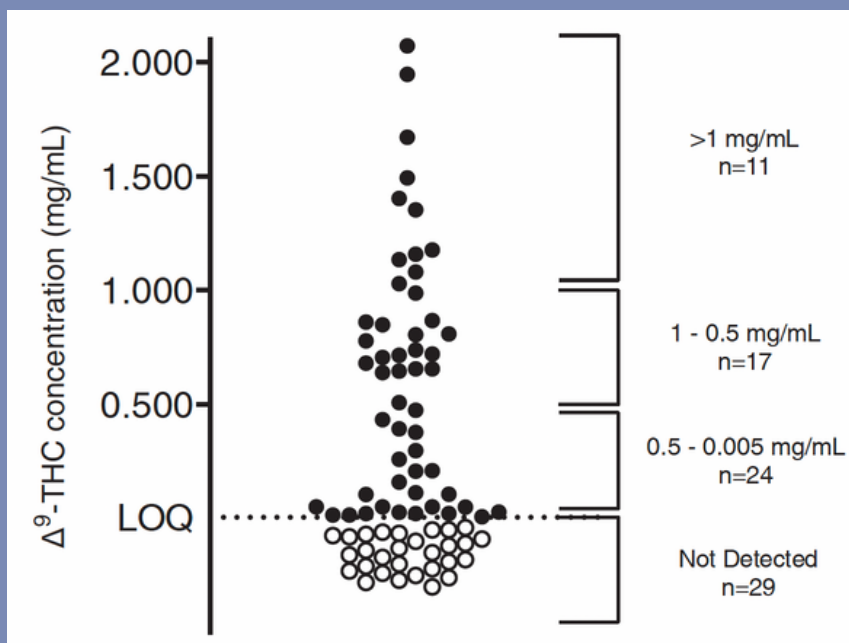
- Product labels do not list all of the cannabinoids present in the product - including $\Delta 9$ -THC
- The labels are often incorrect - the amount of CBD in the product is frequently inaccurate



A) The percentage of CBD label claim content with $\pm 10\%$ tolerance denoting under-labelling ($> 110\%$) and over-labelling ($< 90\%$). B) Deviation from CBD label claim in milligrams. Johnson E, Kilgore M, Babalonis S (2022). Label accuracy of unregulated cannabidiol (CBD) products: measured concentration vs. label claim. J Cannabis Res. doi: 10.1186/s42238-022-00140-1.

THC CONTAMINATION

- 52 out of the 80 samples tested contained $\Delta 9$ -THC
- $\Delta 9$ -THC ranged from 0.008 to 2.07 mg/mL
- Estimates suggest 0.021 - 0.4 mg of $\Delta 9$ -THC may produce a THC-positive drug test
- 60% of products were above 0.021 mg limit; 37% of samples were above the 0.4 mg limit
- 5 out of 21 products labeled "THC Free" contained $\Delta 9$ -THC



$\Delta 9$ -THC concentrations in 80 commercially available products. Johnson E, Kilgore M, Babalonis S (2022). Cannabidiol (CBD) product contamination: Quantitative analysis of $\Delta 9$ -tetrahydrocannabinol ($\Delta 9$ -THC) concentrations found in commercially available CBD products. Drug Alcohol Depend. doi: 10.1016/j.drugalcdep.2022.109522.