

Attachment 3. Background and rationale for EVALI survey questions

Topic Area	What We Know	Key Question	Secondary Question	Implications for Response
Substance(s) Used in Vaping Products	Approximately 86% of cases reported thus far using any THC-containing products, 52% reported using both THC-containing and nicotine-containing products, and 34% reported exclusive use of THC-containing products. In addition, among EVALI patients who have died, 84% reported use of any THC-containing products, 21% reported using both THC-containing and nicotine-containing products, and 63% reported exclusive use of THC-containing products.	Among a convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, is the percentage reporting use of both nicotine-containing products versus exclusive use of THC-containing products different than current EVALI cases?	Are there indications that potential differences may exist when looking at different legal cannabis status or regulatory schemes for oversight of the cannabis market?	<p>-Lack of a difference related to nicotine-containing products might lead to lowering the priority of further studies on nicotine only products.</p> <p>-If a higher percentage of EVALI cases report combined use of THC and nicotine products, we may prioritize laboratory and pathological testing on samples on patients reporting use of both and explore further pathological and laboratory testing on the potential interaction of using both products on lung injury.</p> <p>-A higher percentage of EVALI cases reporting exclusive use of THC-containing products we may prioritize EVALI cases and laboratory samples that reported exclusive use of THC-containing products.</p> <p>-Any regional or state differences or similarities may be of value in targeting CDC, FDA, and state/local investigations</p>
Product Sources	Data from IL, WI, and UT suggest that informal and illicit sources (e.g., friends, online dealers, and illicit in-person dealers) are primary sources of THC-containing products for EVALI patients, with much lower endorsement of licensed dispensaries, vape/tobacco shops, and convenience stores. In the recent IL survey and analysis that compared EVALI cases with people aged 18-44	Among a convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, does the percentage reporting specific source(s) for THC-containing products (i.e., online dealer, in-person dealer, friend, licensed dispensary,	Do patterns of apparently implicated product sources differ by state/region? Do they differ by policy environment (e.g., are THC products obtained from legal dispensaries safer?).	<p>-If cases are more likely than individuals in the convenience sample report obtaining products from illicit dealers, online, or friends/informal sources we may begin to focus on these sources, and prioritize laboratory testing of samples from these sources</p> <p>-If sources are similar across the convenience and EVALI</p>

Attachment 3. Background and rationale for EVALI survey questions

	vaping THC-containing products but without EVALI, EVALI cases were more likely to report informal and illicit sources compared to the survey population (adjusted Odds Ratio (aOR)=9.0)	vape/tobacco shop, convenience store) differ compared to sources for EVALI cases?		patients, we may shift our focus from informal and illicit sources as a line of inquiry and put resources towards broader testing of products across the supply chain, both licit and illicit. -Any regional or state differences or similarities may be useful in targeting additional investigations.
Specific “Brands”	Data from IL, WI, and UT indicate that EVALI cases often report using more than 1 “brand” of THC-containing product in the 90 days before symptom onset; however, certain “brands” are more commonly endorsed than others. In IL and WI, Dank Vapes were reported by (66%), TKO (~12%), and Off White (9%) of EVALI cases. In UT, the three most commonly reported “brands” were Dank Vapes (40%), Rove (36%), and Golden Gorilla (21%).	Among the convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, do the “brands” most commonly reported differ compared to those reported by EVALI cases?	Do any differences exist when looking at regional and state-specific patterns or states with legalized medical and nonmedical cannabis versus states without legalized medical and/or nonmedical cannabis?	-If a higher percentage of EVALI cases than the convenience sample use of products such as Dank Vapes, we may prioritize laboratory testing of these products. Risk communication messages may be further refined to bring focus to particular “brands”. -If a similar percentage of EVALI patients and individuals in the convenience sample report use of specific “brands”, we may de-prioritize this line of inquiry and focus resources on other hypotheses.
Devices/ Products Used	Data from IL, WI, and UT indicate most EVALI patients using THC-containing products used prefilled THC-containing cartridges that are typically designed to be used with universal vape pens. Use for dabbing (typically high concentrate THC waxes using a dab pen or dab rig) and tank systems that use THC oils	Among the convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, does the percentage reporting use of pre-filled THC cartridges, dabbing, or tank-based systems differ from that reported by EVALI cases?	Do any differences exist when looking at regional and state-specific patterns or states with legalized medical and nonmedical cannabis versus states without legalized medical and/or nonmedical cannabis?	-If a higher percentage of EVALI cases than convenience sample persons report use of pre-filled THC cartridges and compatible devices, we may prioritize laboratory and pathological testing of cases that reported this use. In this event, we may also prioritize understanding the components of these devices, such as modifiable heating temperatures that might influence the toxicity of specific chemicals when

Attachment 3. Background and rationale for EVALI survey questions

	<p>were much less commonly reported.</p>			<p>aerosolized. This would allow for the de-prioritization of tank-based systems and dabbing.</p> <p>-If reported use of pre-filled THC cartridges are similar among EVALI cases and individuals in the convenience sample, we might hypothesize that the prior findings related to pre-filled cartridges were likely reflective of broader secular trends and further refine our laboratory and epidemiological strategies to continue to focus on the suite of devices/products patients are using.</p> <p>-Any regional or state differences or similarities may help further target CDC, FDA, and state/local investigations.</p>
<p>Other substances used or vaped</p>	<p>Vaping of other substances have been reported by EVALI cases: flavorings (19.8%), cannabidiol (CBD) products (17.3%), and synthetic cannabinoids (~1%). In addition, data from UT found that 43% of EVALI cases reported use of combustible marijuana, 54% reported use of combustible tobacco, and 24% reported use of both. In IL/WI, 52% of EVALI cases reported use of combustible marijuana and 24% reported use of combustible tobacco.</p>	<p>Among convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, does the prevalence of use or frequency of use of other substances (flavors, CBD, or synthetic cannabinoids) or combustible marijuana and/or combustible tobacco differ compared to EVALI cases?</p>	<p>Do any differences exist when looking at regional and state-specific patterns or states with legalized medical and nonmedical cannabis versus states without legalized medical and/or nonmedical cannabis?</p>	<p>-If a higher percentage of EVALI cases than convenience sample persons report specific other substances or use of combustible marijuana and/or tobacco, we may prioritize case patients and laboratory testing as well as pathological specimens of samples related to the case patients to in order to understand potential contribution of these substances to the development of lung injury and/or severity of lung injury.</p> <p>-If we do not find differences among the sample and EVALI cases, we may de-</p>

Attachment 3. Background and rationale for EVALI survey questions

				<p>prioritize this line of inquiry.</p> <p>-Any regional or state differences or similarities may help target CDC, FDA, and state/local investigations.</p>
<p>Frequency of Use</p> <p><i>NOTE: Primary reason to collect these data is to explore the potential that frequency of use might be a confounder or effect modifier for other relationships identified from the key questions above.</i></p>	<p>Data from IL and the recent IL survey of people vaping THC-containing products found a strong signal for more frequent use (>5 times per day) of THC-containing products among EVALI patients compared to their sample (aOR=3.8). Data from UT suggests that 34% of EVALI patients reported frequent use (>5 times per day).</p>	<p>Among the convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, does the frequency of use differ compared to that reported by EVALI cases?</p>		<p>-If a higher percentage of EVALI cases report more frequent use, we may prioritize laboratory testing and pathological specimen analyses for these patients to understand how more frequent insults to lung tissue or higher exposure to certain chemicals in e-liquids might contribute to lung injury and lung injury severity.</p> <p>-If no signal exists for frequency of use, we may de-emphasize this line of inquiry.</p> <p>-Any regional or state differences or similarities may help target CDC, FDA, and state/local investigations.</p>
<p>Demographics</p> <p><i>NOTE: Primary reason to collect these data is to assess comparability of the convenience sample population to EVALI cases.</i></p>	<p>Current national data indicate that 70% of patients are male, 79% are under the age of 35 years, with 14% under the age of 18 years. In addition, 78% of EVALI cases are non-Hispanic white, and 16% are Hispanic. Thus, we already know from comparison with data on demographic characteristics from the American Community Survey (conducted by the Census Bureau) how both the national, state, and community level characteristics differ from that of the population. It would be interesting to know how representative these cases are to all people who vaping use characteristics, however, a</p>	<p>Among the convenience sample of individuals who vape/dab THC-containing products but have not developed EVALI, do select demographic characteristics (sex, age, race/ethnicity) differ compared to EVALI cases?</p>		<p>-If there are differences in demographic characteristics, it may help generate hypotheses about the potential reasons for the demographic profile of the cases (e.g., men appear more likely to vape certain products or more frequently), thus shed more light on risk factors.</p> <p>-If there are differences in the demographic characteristics among the cases and the convenience sample, those differences may help explain the differences in use frequency of characteristics in the rows above (e.g, if</p>

Attachment 3. Background and rationale for EVALI survey questions

	convenience sample will not allow us to address this question.			there are more women than men in the convenience sample, the characteristics differences in use characteristics may be less valuable).
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