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Tobacco Control

Recommended core items to assess e-cigarette use in population-based surveys

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2 3 4	35	ABSTRACT
5 6 7	36	
8 9	37	Background: A consistent approach using standardized items to assess e-cigarette use in both youth and
10 11	38	adult populations will aid cross-survey and cross-national comparisons of the effect of e-cigarette (and
12 13 14	39	tobacco) policies and improve our understanding of the population health impact of e-cigarette use.
15 16	40	Focusing on adult behavior, we propose a set of e-cigarette use items, discuss their utility and potential
17 18	41	adaptation, and highlight e-cigarette constructs that researchers should avoid without further item
19 20 21	42	development. Reliable and valid items will strengthen the emerging science and inform knowledge
22 23	43	synthesis for policymaking.
24 25	44	
26 27 28	45	Methods: Building on informal discussions at a series of international meetings of 65 experts from 15
29 30	46	countries, the authors provide recommendations for assessing e-cigarette use behavior, relative
31 32	47	perceived harm, device type, presence of nicotine, flavors, and reasons for use.
33 34 35	48	
36 37	49	Results : We recommend items assessing eight core constructs: e-cigarette ever use, frequency of use,
38 39	50	and former daily use; relative perceived harm; device type; primary flavor preference; presence of
40 41 42	51	nicotine; and primary reason for use. These items should be standardized or minimally adapted for the
42 43 44	52	policy context and target population. Researchers should be prepared to update items as e-cigarette
45 46	53	device characteristics change.
47 48 49	54	
50 51	55	Conclusions : A minimum set of e-cigarette items is proposed to encourage consensus around items to
52 53	56	allow for cross-survey and cross-jurisdictional comparisons of e-cigarette use behavior. These proposed
54 55 56	57	items are a starting point. We recognize room for continued improvement, and welcome input from e-
57 58 59	58	cigarette users and scientific colleagues.

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9 What this paper adds:

0 Jurisdictions have taken different approaches to regulating e-cigarette devices and e-cigarette use.

1 These different approaches present an opportunity to evaluate the effect of e-cigarette policies and

2 regulation on e-cigarette and tobacco product use. However, for cross-jurisdictional comparisons to be

3 useful, approaches to assessing e-cigarette use must be similar. The recommended set of eight e-

4 cigarette measures for surveillance includes two core items to distinguish ever use from more frequent

5 use and six items to assess former use, relative perceived harm, primary device type, primary flavour

preference, nicotine content, and primary reason for use. 6

98 INTRODUCTION

E-cigarette use has grown in many high- and middle- income countries, [1-12] resulting in a rapidly evolving e-cigarette marketplace. As e-cigarette use is still a relatively new behavior, researchers have taken a variety of approaches to measuring use, often adapting cigarette smoking items to assess e-cigarette use. The lack of a consistent approach to assessing e-cigarette use is a barrier to knowledge synthesis [13, 14] and to conducting meaningful cross-national comparisons of the effect of e-cigarette policies on population tobacco use patterns. It has been recommended that monitoring, evaluation, and research use standardized approaches and definitions of e-cigarette use for trial, occasional, and regular users and among youth and adult populations.[13, 15]

As evidenced by at least 139 countries' adoption[16, 17] of the Global Adult and Global Youth Tobacco Surveys (GATS & GYTS), researchers, governments, and funders are aware of the power of common items for understanding the effect of policy on behavior. The following suggested core e-cigarette items are the result of a Robert Wood Johnson Foundation-funded (RWJF) project ('Harvesting Global Learning on Alternative Nicotine Delivery Systems (ANDS) to Inform U.S. Policy Action, Policy Research, and Surveillance') that brought together researchers and government representatives to identify existing needs to support cross-national e-cigarette research and learning. While no formal Delphi method was employed, the following recommendations are based on input from the 65 individuals from 15 countries included in the RWJF meeting series, as well as the authors' own experiences developing questions, analyzing responses, and/or interpreting findings for the International Tobacco Control (ITC) 4-Country Study,[18] Smoking Toolkit (STS),[19] Population Assessment of Tobacco and Health (PATH) Study, [20] Online Panel Survey in Great Britain [27-29], Truth Initiative Young Adult Cohort Study [21], National Health Interview Survey, [3] and National Youth Tobacco Study[22, 23] surveys, providing unique insight into the strengths and limitations of various e-cigarette items.

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2 3 4	122	Focusing on adults, the purpose of this paper is to propose an efficient set of e-cigarette use
5 6	123	items to enable accurate cross-jurisdictional comparisons of e-cigarette use behavior and to allow
7 8 9	124	systematic evaluation of the effects of policy on e-cigarette and tobacco product use. While they still
10 11	125	need to undergo systematic evaluation, we hope that these proposed items will promote open dialogue
12 13	126	and further development of rigorous items for national and sub-national e-cigarette surveillance
14 15 16	127	research.
17 18	128	
19 20	129	ASSESSING E-CIGARETTE USE
21 22 22	130	There are several general issues that need to be considered when developing a survey with e-
23 24 25	131	cigarette items. These include the survey's target population, the policy setting, and the mix of tobacco
25 26 27 28 29 30 31 32	132	products and e-cigarette devices available to the target population. It is also important to take into
	133	account e-cigarette terminology and to accurately differentiate between e-cigarettes, other emerging
	134	products, and traditional tobacco products. We describe these issues here before introducing a core set
33 34	135	of recommended items.
35 36 37 38	136	E-cigarette terminology
39 40 41	137	E-cigarettes are known by a variety of names, with terms varying by region, age group, tobacco
42 43	138	use status, or reason for use.[24, 25] Terms that have been used include electronic cigarettes, e-
44 45	139	cigarettes, electronic nicotine delivery systems (ENDS), alternative nicotine delivery systems (ANDS),
46 47 48	140	electronic vapor products, e-cigars, e-pipes, e-hookahs, e-shishas, personal vaporizers, vape pens, and
40 49 50	141	hookah pens. The meaning of these terms is not standardized, and the same term may be employed to
50 51 52	142	refer to different sub-types of devices. The researcher-generated terms 'ENDS' and 'ANDS' inaccurately
53 54	143	imply that these devices always contain nicotine. These are academic terms and should be avoided in
55 56 57 58 59	144	public-facing documents and presentations.[25] Currently, it is likely that the most universally

2 3 4	145	understood terms are 'electronic cigarettes,' 'e-cigarettes,' or the phrase 'e-cigarettes or other vaping
5 6 7	146	devices.'
, 8 9 10	147	A helpful way to introduce the relevant terminology in surveys is to include a 'preamble,' or a
11 12	148	brief introduction at the start of the e-cigarette section. For example, the Wave 1 survey instrument for
12 13 14 15 16 17 18	149	the PATH Study used this preamble:
	150	'The next questions are about e-cigarettes. Some e-cigarettes can be bought as one-time,
19	151	disposable products, while others can be bought as reusable kits with a cartridge or tank system.
20 21 <u>22</u>	152	Some people refill their own e-cigarettes with nicotine fluid, sometimes called 'e- liquid.'
23 24 25 26	153	Disposable e-cigarettes, e-cigarette cartridges and e-liquid come in many different flavors and
	154	nicotine concentrations. Some common brands include Fin, NJOY, Blu, e-Go and Vuse.'
27 28 29	155	This preamble was developed for use in the United States in 2014, and has been updated in each PATH
29 30 31 32 33 32 33 35 37 38 39 41 42 44 45 46 47 48 951 52	156	Study survey wave. Researchers should be aware that introductory text such as this preamble will need
	157	to be modified as products change and the public develops familiarity with e-cigarettes. In markets
	158	where 'heat-not-burn' products, such as iQos, have been introduced, the preamble could note that
	159	respondents should not consider these products when answering e-cigarette items. We strongly suggest
	160	pilot research to assess the appropriate e-cigarette terms in surveys, and if possible, we suggest
	161	including both the standard (e.g., e-cigarette) and colloquial (e.g., vaping device) names. Future research
	162	should include regular cognitive testing of terminology used to identify e-cigarette native terms used by
	163	the survey's target population. Surveys with appropriate modes may consider using pictures of devices.
	164	These pictures should also be cognitively tested and updated as e-cigarettes evolve in the target
	165	population's setting.
53 54 55 56 57 58 59	166	Differentiating e-cigarettes from cigarettes and new emerging products

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An additional challenge in e-cigarette survey item development is clearly differentiating cigarette items from e-cigarette items. As these devices do not produce smoke, it is not appropriate to refer to 'smoking' or 'smoker' when describing e-cigarette use, nor are these terms generally employed among established e-cigarette users. [26] The scientifically accurate term for e-cigarette emissions is 'aerosol'; however, the popular term for e-cigarette emissions understood by the public is 'vapor.' E-cigarette use behavior should be described as 'use' or 'vaping.' We recommend differentiating e-cigarette use from 'smoking' when smoking is first mentioned in the survey. For example, the 2016 Online Panel Survey in Great Britain [27-29] used the following text at the beginning of its tobacco use section: "When we refer to cigarettes, pipes, cigars, or other tobacco products, we are not referring to electronic cigarettes or vaping devices (because these do not contain tobacco)." In the case of vaping devices that could be used for nicotine or cannabis consumption, researchers could consider an additional item about the substance most commonly consumed with the device, which could then be used as a basis for skip patterns or form fills. We also strongly recommend that heat-not burn products be assessed separately from e-cigarette products. As heat-not-burn products continue to spread within and beyond the European Union and Japan, the research community will need to seriously consider how to assess use of these products so that they are differentiated from traditional combusted tobacco and vaping products.

Recommended e-cigarette items

Table 1 presents a minimum set of e-cigarette items that, in the experience of the authors, are essential to assessing the role of policy on e-cigarette and tobacco use behavior. The items cover eight constructs: ever use, frequency of use, former daily use, relative perceived harm, device type, presence of nicotine, flavor preference, and reasons for use. The first two constructs, ever use and frequency of

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use, are further identified as minimum core e-cigarette items when survey space is limited. It should be
noted that this minimum set of items is insufficient for surveys of tobacco users or vapers.

192	E-cigarette ever use: Ever use of e-cigarettes captures initiation or trial. While this construct is
193	useful for quantifying the proportion of initiates in a population and constructing skip patterns within
194	surveys, it is minimally useful in analyses, as most ever use is limited to 1 or 2 instances.[3, 15]
195	Researchers should use caution when employing this item as a measure of exposure to e-cigarettes.[30]
196	Prior research has employed ever use as a measure of e-cigarette exposure among adult smokers;[31-
197	33] however, this weak measure yields uninterpretable estimates of the effect of e-cigarette use on
198	smoking. It should be noted that 'ever e-cigarette use' (i.e., trial) is different than 'former daily use,'
199	which we present below.
200	We recommend assessing e-cigarette ever use with an item from the ITC 4-Country Survey.[34]
201	This item should be asked of all survey respondents and allow a 'Don't know' response. Additionally, e-
202	cigarette ever use should be asked on its own rather than as part of a list of tobacco products, as the list
203	approach is likely to underestimate use.[3]
204	Frequency of e-cigarette use: It is still not known what levels of e-cigarette use are relevant to
205	behavioral and health outcomes. Frequency of e-cigarette use is commonly assessed by asking the
206	participant about the number of days he or she has used an e-cigarette in the past 30 days. However,
207	due to the transience of e-cigarette use in some populations (i.e., smokers or young adults), we do not
208	recommend this approach for estimating frequency of use for two reasons. First, this item encourages
209	equating any level of use in the past 30 days with 'current' use, conflating recent initiates or
210	experimental users who may be unlikely to progress to daily use with current, established e-ciproette
211	users.[10, 12, 15, 35] Second, this item is most useful in combination with a subsequent item assessing
212	the length of time the use pattern has endured, which increases the number of items in our core set of
213	items.
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Our proposed item, adapted from the ITC 4-Country Survey,[34] allows for flexibility in defining a meaningful level of e-cigarette use. In addition to surveillance surveys, this item is also appropriate to assess within-person changes in cohort studies and could be used alone when only one or two questions on e-cigarettes are possible due to space restrictions. Researchers should include parallel items assessing frequency of e-cigarette use and cigarette smoking so that co-use of these products (i.e., 'dual use') can be compared.

220 Former daily use: Assessing patterns of former daily use is important for understanding the 221 impact of e-cigarette use on uptake or reduction of smoking, as well as e-cigarette-related health 222 outcomes. PATH Waves 1-2 and the ITC surveys ask whether respondents who do not currently use e-223 cigarettes have ever used e-cigarettes 'fairly regularly.' Rather than leaving the definition of 'fairly 224 regularly' to respondents, we suggest asking about at least daily use over a month or more, which would 225 indicate that the user had vaped for an extended period and may be relevant for behavioral outcomes. 226 Relative perceived harm: Common theories of health behavior posit that harm perceptions 227 influence tobacco use behavior, with lower perceived harm encouraging higher levels of 228 experimentation and current use. PATH, ITC, STS, GATS, and the Truth Initiative Young Adult Cohort ask about absolute or relative perceived harm. We suggest assessing perceived harm relative to cigarettes 229 230 (rather than absolute perceived harm) among all survey respondents due to their common use as a 231 smoking cessation or harm reduction tools.[36, 37] Using an item adapted from PATH and the ITC 4-232 Country survey, we suggest assessing relative perceived harm to understand how tobr to use 233 prevention and health communication campaigns, as well as media coverage, affect the perceptions of 234 non-, former, and current tobacco users, and how these perceptions affect e-cigarette use. 235 Device type: E-cigarettes are a diverse product class and must not be treated as a single product. 236 With the wide variation in design, content, function, nicotine delivery, price, and availability of these 237 products, different types of e-cigarette devices may have different behavioral and health effects. A

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growing body of work suggests that device characteristics such as nicotine content and type of battery are correlated with e-cigarette use behaviors and may affect smoking cessation.[28, 38-41] Given the diversity of the products, it is unsurprising that surveys vary widely in their approach to capturing device type. Some surveys (e.g. PATH Wave 2) split questions about devices into two parts: a first question about the size/shape of the device, and a second question about whether the device is disposable, uses pre-filled cartridges, or is refillable with liquids. Some studies (e.g. PATH Waves 1-2 and ITC) also use pictures of e-cigarette types.

The wording and response options for our suggested device type item are driven by battery size, which has been shown to affect nicotine delivery [42, 43] and smoking cessation. [38] Our proposed response options identify four mutually exclusive types of devices (Table 1). For analyses, these items may be collapsed into Groups 1 and 2, likely to have less powerful batteries (often called "cigalikes"), and Groups 3 and 4, likely to have more powerful batteries, often called "second generation" and "mods." Devices with larger batteries are normally refillable with e-liquid (e.g., a liquid containing some mix of propylene glycol, glycerin, water, flavoring, impurities, and often nicotine), which may be associated with a risk of unintentional poisoning and is a relevant data point in estimating population harms.[44, 45] While we have found this approach useful in understanding device characteristics in the UK and US, items assessing device characteristics will need to be adapted according to availability of e-cigarettes in different jurisdictions and the evolution of the devices. The utility of this approach may diminish as devices with more powerful batteries and pre-filled cartridges or sealed tanks are made available Nicotine content: Similar to understanding device characteristics, assessing e-cigarett iniciane content has no direct parallel cigarette survey item. Few of the first national and international sur eys of e-cigarettes asked if the device contained nicotine. As countries banned nicotine-containing e-

261 cigarettes, more surveys asked about whether devices used contained nicotine.[12, 46-49] These items

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often ask about nicotine concentration by percent, milligrams per milliliter (mg/mL), or by an ordinal
descriptive term (e.g., "low," "medium," and "high"). Each of these approaches, however, has serious
drawbacks. Asking about nicotine concentration by percent or mg/mL is difficult for inexperienced users,
yielding a number of 'don't know' responses (e.g., 12% 'don't know' in a recent Action on Smoking and
Health survey).[50, 51] Using terms that correspond to manufacturers' descriptions (e.g. 'low') is also
problematic because these labels do not necessarily capture similar ranges of nicotine concentrations
across brands or jurisdictions.

Our proposed nicotine content item requires some respondent knowledge and is similar to an item used in PATH Wave 2. Our item asks about 'the vaping device you use most often' because sophisticated users may use multiple nicotine concentrations, employing different strengths of nicotine in different situations or over time. It may be possible to collect more reliable information on e-liquid nicotine concentration among experienced users; however, the ultimate amount of nicotine delivered to the user depends on the device, the nicotine concentration, and the user's experience with e-cigarettes, among other variables.[42, 52-55] Assessing nicotine fluid concentration is of limited application until we have refined items to accurately assess device characteristics such as battery wattage and coil resistance. In jurisdictions where certain nicotine concentrations are banned, it may be useful to adapt our suggested item to assess use of the banned e-liquid nicotine concentrations.

Flavors: Most e-cigarettes, even those that taste like traditional cigarettes, are flavored because their main constituents (e.g., nicotine, propylene glycol) have little flavor. However, truby flavored eliquids (e.g., those that contain only propylene glycol, glycerin, water, and nicotine) are also available. Most existing surveys of e-cigarette use ask about flavors, but their approach differs. PATh W ves 2 and ITC ask about flavors that are available in cigarettes (e.g., traditional tobacco, menthol or min 23 well as several other flavor categories (e.g. chocolate, fruit, clove or spice, alcoholic drink, dessert). While understanding the prevalence of different e-cigarette flavor preferences may shed light on the

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behavioral and public health impact of flavor use, this is a difficult behavior to accurately assess. First, respondents may find describing their preferred flavor using a list of generic terms challenging if their preferred flavor fits into multiple categories. For example, is "piña colada" an alcoholic drink or a fruit flavor? Second, like nicotine concentration, e-cigarette users may vape a variety of e-cigarette flavors. Respondents to the PATH Wave 2 and the 2016 ITC survey were provided a list of individual flavors and asked to "select all that apply" to describe their flavor use in the past 30 days. With this approach, however, it is unclear whether the respondents are describing one preferred e-liquid flavor, or a range of preferred flavors.

Ultimately, the flavor response options should be dependent on the current situation in the target population's jurisdiction and the purpose of the research. In the US, for example, menthol cigarettes are legal and prevalent, but other flavored cigarettes are banned. Thus, it makes sense to ask about menthol e-liquid use separately from other flavors. In different policy contexts, it may make sense to ask about other flavors. Our recommended item focuses on the most common flavor because some users may consume multiple flavors in a day or week. The proposed response options avoid the problem of multiple categorization of a flavor and decrease response burden. While switching between flavors is an important construct that should be assessed in surveys with large sample of daily vapers, this item is of limited use in a general population survey in settings where daily e-cigarette use is uncommon, which describes nearly all current settings.

Reasons for use: Given the opportunity, e-cigarette users will nominate multiple reasons for ecigarette use.[36, 56] While allowing respondents to choose multiple reasons for use remects omplex motivations for the behavior, it has limited utility for understanding the role of e-cigarette use τ .a behavioral intention in e-cigarette and tobacco use behavior. It could be argued that qualitati.e research may be more appropriate for in-depth explorations of reasons for use. However, where survey space allows, a single question on the main reason why e-cigarettes or vaping products are/were used

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23 4 5 6 7 8 9	310	may be relevant for policy and practice. If the survey mode allows, researchers may also consider asking
	311	respondents to rank their reasons for use, which would still allow for comparisons of top reasons across
	312	jurisdictions. If the purpose of a survey is to measure the effectiveness of e-cigarettes for smoking
10 11	313	cessation, we recommend including 'e-cigarette or vaping device' in a list of questions that assess what
12 13	314	approach, support, or aids were used during a specific attempt to stop smoking (e.g., in the last
14 15 16 17 18 19 20 22 22 22 22 22 22 22 22 22 22 22 22	315	attempt).[57]
	316	E-cigarette items of limited utility
	317	In addition to our eight recommended items, we highlight three constructs which we believe are
	318	of limited utility in most jurisdictions: e-cigarette awareness, e-cigarette or e-liquid quantity of
	319	consumption, and e-cigarette or e-liquid brands.
	320	E-cigarette awareness: Until recently, most national surveys asked about awareness of e-
	321	cigarettes. In 2014 and 2015, the US National Adult Tobacco Survey (NATS) and STS in England did not
	322	assess awareness because previous surveys had shown e-cigarette awareness was near universal (93%
	323	in the UK as early as 2012[58] and 86.4% in the US in 2013[59]). We recommend dropping the
	324	awareness item in jurisdictions where awareness has reached saturation.
39 40 41	325	E-cigarette or e-liquid quantity of consumption: One complex issue in e-cigarette research is
42 43	326	evaluating how much e-liquid users consume. Research suggests that frequency of e-cigarette use is
43 44 45 46 47 48 49 50	327	relevant to smoking cessation effectiveness. [28, 29, 60] Many surveys follow approaches similar to
	328	those assessing heaviness of smoking among cigarette smokers,[61] asking about con umption of
	329	cartridges or disposable e-cigarettes per day, or number of e-cigarette puffs per day. For vers
51 52	330	refillable e-cigarettes, items ask how long it takes to use a specific amount of e-liquid (i.e., 10n.) or .ne
53 54 55	331	size (in ml) of the last bottle purchased and how long it usually lasts. Interestingly, this is similar to
55 56 57 58	332	methods that have been developed for assessing cannabis consumption. [62] PATH, ITC, and STS all ask
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questions about the daily quantity of e-cigarette use. PATH and ITC ask about daily consumption in product units, and how long one's last purchase of liquid will last (ITC), while STS asks about number of times per day the e-cigarette is used. However, e-liquid bottles and e-cigarette refillable reservoirs are of varying sizes, so time to depletion is of limited utility without reliable information about the respondent's device. Additionally, e-liquid consumption as a function of puffs per day will vary by the user's puff topography and device settings. Similar to frequency of use, the field is in its infancy and we are only beginning to accurately measure and understand how heaviness of use/daily quantity may predict public health outcomes. Without item testing, we recommend including these items with caution and ask that researchers share their lessons learned and publish formative work to advance the field. E-cigarette and e-liquid brands: It is common practice in surveys of smoking behavior to include questions about the respondent's preferred brand; this practice has been applied to brand varieties of devices and e-liquid. Assessing e-cigarette device brands is challenging, as there are thousands of varieties, and it is unclear how brand loyal e-cigarette users are to device and e-liquid makers. Experienced e-cigarette users may have more than one device, or may combine components from multiple brands. Casual e-cigarette users may not know the brand of their device or e-liquid. Despite these challenges, brand is a worthwhile construct for understanding the effect of marketing on e-cigarette use behavior. CONCLUSION Using the combined experience of an international group of researchers, we have pronos da minimum set of e-cigarette items to encourage consensus around items and allow for cross-jurisdictional comparisons and surveillance of e-cigarette use. These proposed items are meant to open

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2 3 4 5 6 7 8 9 10 11	356	a dialogue on meaningful items for national e-cigarette surveillance and should be updated as
	357	measurement of e-cigarette use behavior evolves. We recognize that there is room for continued
	358	improvement of these items, and we welcome input from e-cigarette users and academic/public health
	359	colleagues. We also encourage discussion of how common definitions of e-cigarette use and consistency
12 13	360	in reporting of results could advance the field. Additionally, this paper focuses on items for surveys and
14 15 16	361	studies with adults only; future recommendations are needed for youth surveys, although some of the
17 18	362	same items are applicable to youth. Standardized, reliable, and valid surveillance items will speed
19 20	363	knowledge synthesis both within and across countries, will place patterns and reasons for e-cigarette
21 22 23	364	use in the context of the emerging complexity of poly-tobacco/nicotine product use, and will better
24 25	365	inform policymaking and regulation and the overall public health impact of e-cigarettes and related
26 27	366	products.[63]
28 29 30 31 32	367 368 369	Ethics Approval Statement: This manuscript does not include human subjects research, so ethics
32 33 24	370	approval was not obtained.
34 35 36 37	371	
37 38 39	372	Research Reporting Statement: As this is a Special Communication that does not report results from
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44 45 46 47 48 49 50 51 52 53 54 55	375	Acknowledgements: The authors would like to thank the Robert Wood Johnson Foundation for funding
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$\begin{array}{c} 36\\ 37\\ 38\\ 40\\ 41\\ 42\\ 43\\ 44\\ 45\\ 46\\ 47\\ 48\\ 9\\ 51\\ 52\\ 53\\ 55\\ 55\\ 55\\ 55\\ 55\\ 55\\ 58\\ 59\\ \end{array}$	395 396	
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Table 1. Recommended minimum core items to assess e-cigarette use in national surveys.

Construct	Item	Response options	Population/Respondents
CORE ITEM Ever use	Have you ever tried an e-cigarette or vaping device?	a) Yes b) No c) Don't know	All
CORE ITEM Frequency of Use	How often do you currently use an e-cigarette or vaping device?	 a) Daily or almost daily b) Less than daily, but at least once a week c) Less than weekly, but at least once a month d) Less than monthly e) Not at all 	Those who respond 'yes' to 'ever use' question
Relative harm	Compared to cigarettes, how harmful are e-cigarettes to a person' health?	 a) Much less harmful than cigarettes b) Somewhat less harmful than cigarettes c) About the same as cigarettes d) Somewhat more harmful than cigarettes e) Much more harmful than cigarettes f) Don't know 	All
Former daily use	Have you ever used an e-cigarette or vaping device daily for a month or more?	a) Yes b) No c) Don't know	Those who responded (a) 'yes' to the 'ever use' question but (b) 'less than daily, but at least once a week', (c) 'less than weekly, but at least once a month,' (d) 'less than monthly or (e) 'not at all' to the frequency of use question. [Some further filtering may be needed depending on the frequency of use response option chosen and the target population.]
Device type	55 56 57	What e-cigarette or vaping device [do/did] you use	(the most)?

a) A disposable e-	Those who respond (a) 'yes' to
cigarette of	ever use question
vaping device	
(non-	
rechargeable)	
b) An e-cigarette or	
vaping	

device that uses

				replaceable pre-filled	
			c) d)	cartridges (rechargeable) An e-cigarette or vaping device with a tank that you refill with liquids (rechargeable) A modular system that you refill with liquids (you	
			e)	use your own combination of separate devices: batteries, atomizers etc) (rechargeable) Don't know	
	Presence	Does the e-cigarette or vaping device that you use most often	a)	Yes	Those who responded 'daily', 'less than daily, but at least
		contain nicotine?	b)	No	once a week,' 'less than
			c)	Don't know	month,' or 'less than monthly' to the frequency of use
	Flavor preference	What flavor [do/did] you use most when vaping/using an e-cigarette or vaping device? (select one) [randomize list of response options]	a) b) c)	Tobacco Tobacco menthol, menthol, or mint Some other flavour like	Those who respond 'yes' to 'ever use' question
			d) e)	fruit, candy, alcohol, coffee, vanilla, etc. No flavour Don't know	Note: List of flavours depending on policy context and research question
	Reasons	What is (was) your <u>primary</u> reason	a)	To quit smoking	For those who are at least
	for use	for using an e-cigarette or vaping device? (select one) [randomize list	b) c)	To cut down smoking To use when I cannot or	once a month users
		of response options]	d)	am not allowed to smoke To avoid returning to	
			e)	smoking Because Leniov(ed) it	
			c) f)	Curiosity/just wanted to	
			g)	try them Some other reason	
67	57 58				
			23		

<u>h) Don't</u> <u>know</u>

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