Written evidence submitted by Professor John Holloway, University of Southampton (TVB87)

Response to Tobacco and Vapes Bill: call for evidence "What even is the problem with vaping?"

Understanding the perspectives of young people

Policy Brief

1. The Research Team

Dr Kath Woods-Townsend is a Principal Research Fellow at the University of Southampton and the LifeLab Programme Director. LifeLab Southampton is an innovative evidence-based educational intervention which shows adolescents first-hand how their diets and lifestyles lay the foundations for a healthy life, and how their own health is linked to the health of children they may themselves have in the future.

Lisa Bagust is the LifeLab Secondary Lead. Lisa led the LifeLab Youth Panel in their work to use insights from focus groups carried out with young people in Southampton to create educational resources about the dangers of vaping.

Professor John Holloway is Associate Vice President (Interdisciplinary Research) and Professor of Allergy and Respiratory Genetics at the University of Southampton. In addition to the LifeLab vaping project, he is working with colleagues as part of the RHINESSA consortium seeking to understand the effect of exposure to environmental exposures, especially tobacco smoke and other nicotine-containing products, not only on our own health, but also the health and potential illnesses of our children and grandchildren

Busola Onanubi was a University of Southampton student on the Global Public Health MSc degree and conducted the thematic analysis of the youth focus groups as part of her MSc dissertation.

The LifeLab Youth Panel was established to recognise and value the contribution of young people in the co-production of the LifeLab research, interventions and resources. Young people from schools/colleges primarily in Hampshire, Isle of Wight, Portsmouth and Southampton are employed for 12 weeks at a time. This Youth Panel was focused on understanding the role vaping plays in the lives of young people and co-creating resources to support schools and youth organisations to engage and educate young people about vaping.

Lifelab Youth Panel members: Jasmine Aburrow (15yrs), Alisha (16yrs), Seb Bannister (16yrs), Clive Cheung (16yrs), Eva (16yrs), Tehya Coak (16yrs), Maria Gbesemete (16yrs), Madeleine Harris (17yrs).

2. Executive Summary

The increasing popularity of vaping amongst young people is alarming. Despite it being illegal for young people under the age of 18 to purchase and use vapes, the number of children using vapes has tripled in the past 3 years with 1 in 5 children having tried vaping in 2023.[1] Research would suggest that it is the fruity flavours, bright colours, and child-facing branding which is attractive to young people. Along with the ease and cheapness of disposable vapes. Our work with young people and schools has revealed to us the growing concerns that young people, teachers and parents have and shows the scale of the problem. We have a responsibility to act now to ensure we are not complicit in allowing the next generation to start adulthood in less than optimal health. In the words of young people, they don't want 'to be the experiment' for us to learn and understand the health consequences of vaping.

3. Policy Context

Our research demonstrates the consequences of poor health from a young age on future risk of disease and disability, illustrating why providing an environment in which the next generation can thrive is so essential.[2] Although vape devices do not contain tobacco, they still contain other chemicals and can contain nicotine. The addictive effects of nicotine on the developing teenage brain are well documented,[3,4] and increasingly evidence reveals the long-term consequences, such as increased risk of asthma, obesity and poor lung function, of nicotine on the health of the next generation.[5] In April 2023, the Office for Health Improvement and Disparities (OHID) ran a 'Call for Evidence' on Youth Vaping, followed in October 2023, by a consultation from the Department for Health and Social Care (DHSC) 'Creating a smokefree generation and tackling youth vaping'. The precautionary principle asserts that the burden of proof for potentially harmful actions by industry or government rests on the assurance of safety, and that when there is credible evidence for the potential of serious harm, lack of full scientific certainty shall not be used as a reason for postponing measures to prevent harm.[6] This principle should also apply to public health measures such as use of vaping to reduce harm from tobacco smoke.[7] In addition, irrespective of any potential short and long term harms of vapes, evidence is accumulating that young people using e-cigarettes are more likely smoke and have more frequent tobacco cigarette use later in adolescence.[8] Following on from the public consultation, the introduction of the Tobacco and Vapes bill is a welcome first step.[9] However, urgent enforcement of the new measures is required. Extensive consultation and procrastination only increases the numbers of the next generation trying and becoming addicted to vapes. Seeing the dramatic increase in numbers of young people trying vapes, and that the age of these young people is becoming younger only reinforces the urgency of this issue. We know there is a lag between collecting this information and the reality of the situation –

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[1] https://ash.org.uk/resources/view/use-of-e-cigarettes-among-young-people-in-great-britain

[2] Baird, J.; Jacob, C.; Barker, M.; Fall, C.H.D.; Hanson, M.; Harvey, N.C.; Inskip, H.M.; Kumaran, K.; Cooper, C. Developmental Origins of Health and Disease: A Lifecourse Approach to the Prevention of Non-Communicable Diseases. *Healthcare* 2017, *5*, 14. https://doi.org/10.3390/healthcare5010014

[3] Yuan M, Cross SJ, Loughlin SE, Leslie FM. Nicotine and the adolescent brain. J Physiol. 2015 Aug 15;593(16):3397-412. doi: 10.1113/JP270492. Epub 2015 Jun 23. PMID: 26018031; PMCID: PMC4560573.

[4] Castro EM, Lotfipour S, Leslie FM. Nicotine on the developing brain. Pharmacol Res. 2023 Apr;190:106716. doi: 10.1016/j.phrs.2023.106716.

[5] Kitaba, N.T., Knudsen, G.T.M., Johannessen, A. et al. Fathers' preconception smoking and offspring DNA methylation. Clin Epigenet 15, 131 (2023). https://doi.org/10.1186/s13148-023-01540-7

[6] United Nations General Assembly. 1992. Report of the United Nations Conference on Environment and Development, Annex I, Rio Declaration on Environment and Development, Rio de Janeiro, 3–14 June 1992

[7] Goldstein BD. The precautionary principle also applies to public health actions. Am J Public Health. 2001 Sep;91(9):1358-61. doi: 10.2105/ajph.91.9.1358. PMID: 11527755; PMCID: PMC1446778.

[8] Kelly BC, Vuolo M, Maggs J, Staff J. E-cigarette use among early adolescent tobacco cigarette smokers: testing the disruption and entrenchment hypotheses in two longitudinal cohorts. Tob Control. 2023 Apr 18:tc-2022-057717. doi: 10.1136/tc-2022-057717.

[9] https://publications.parliament.uk/pa/bills/cbill/58-04/0189/230189.pdf

so, if currently 1 in 5 young people have tried vaping – the reality will be that this is much higher and that children in primary school are already being influenced.

- *"Most of the people who I see vaping are usually young, around age of eleven and twelve which is quite concerning"*
- *"I have seen some Year 6s doing it just like Year 11s do it".*
- *"I feel we hear all the kids in the toilets, like the Year 7s: "Please, just let me use your one; I really need it"*
- *"I've seen year 6s pick them up off the ground and just put their mouths on them".*

Within this policy context, we began our work with the LifeLab Youth Panel. To generate the evidence to enable co-creation of education resources, they created the topic guides for the youth focus groups. They conducted their own research – hearing from experts. Using this evidence and the insights from the youth focus groups, the Youth Panel prepared responses to both of the government consultations,[10] and co-created an education resource pack.

4. Research Aims

What are the motivations of young people to experiment with vaping?

- What engagement levers will be most effective for education resources?
- How feasible and effective is it to co-create these resources with young people?

5. Research Findings

- What are the motivations of young people to experiment with vaping?

From the focus groups with young people, some key themes emerged. There was widespread agreement that manufacturers' marketing tactics played a significant role in increasing the appeal of vapes and the opportunities for young people to experiment. The most common tactics identified were the appealing colours, unique and attractive packaging (using branding that linked to young people's culture) and youth-friendly flavours. Flavours in particular were highlighted, as popular varieties mimic sweet flavours or fruit flavours (giving a sense of healthiness). Vape devices are also named to resemble confectionary, e.g. 'Elf Bar' (like a new type of chocolate bar to try):

- *"The key appeal in vapes to children is their flavours and the way that the products are designed and advertised. The flavours and package design very commonly reflect that of sweets, A vibrant colour range. This in turn makes them seem much safer than they really are."*

[10] https://www.southampton.ac.uk/publicpolicy/support-for-policymakers/Consultations/consultation-responses/youth-vaping-call-for-evidence.page

- *The flavours repeatedly reflect those of sweets that children eat, there is most definitely a correlation here. […] Also the involvement of fruity flavours also portrays the idea that they are safe, maybe even healthy."*

- *"Having flavours to vapes makes them sound highly innocent for instance what would you rather inhale an e-cigarette or a mango flavoured elf bar."*

- *"I've seen some where the bottom of it has got six or seven lights in it and when you suck on it, it starts flashing these bright coloured lights. No adult wants to walk down the road with a disco light, but kids of course they do."*

- *"They put it in shop windows all colourful; this flavour, that flavour, unicorns, milkshakes; what do you expect kids to do"?*

- *"And I feel like at least once a month there is some new thing being designed, like there were the cup ones, then the slush puppy ones, the coffee shop looking ones; they just keep making new designs".*

It was also apparent that young people didn't feel that there was peer pressure to take up vaping but rather that vaping was simply becoming normalised. As more people, particularly young people, are seen vaping, it just feels like the thing to do and that it's OK and not dangerous or unhealthy, and looks cool because so many people are doing it. Mistakenly, young people (and older) equate vaping with a way to 'de-stress', not recognising the consequences of nicotine on their bodies. In a similar way to smoking, vaping is seen as a way of socialising – if your group of friends is vaping and you aren't you are left out:

- *[**Youth worker**] " a young person said to me: "oh, you'll prob just think I'm really sad, but I just started because I thought it looked cool, and now I'm addicted"*

- *"I think it's not so much [peer] pressure, it's more seeing other people doing it and you get encouraged to do it because you're seeing it from others. It's not like [peer] pressure as such like, "Oh, try it; try it; try it", it's more you just see it from everyone and you're like, "Oh, so everyone is doing why am I not doing it?" like you feel left out sort of."*

- *"I believe that children look at vaping as a social activity just like adults have a couple of pints at the pub over a conversation, children will vape in the toilets or on the bus whilst talking about teachers and subjects"*

Opportunities to experiment with vapes were related to advertising, availability and cost. Young people commented that vapes were displayed prominently in shops. They discussed the ease with which they and their peers could access vapes; knowing the shops which wouldn't challenge their age, drawing on family members to supply them, or using online suppliers. Young people will look for the cheapest and most easily sourced vapes (these are also most likely to be least regulated):

- *"teenagers they go out on the weekends, they'll go out to town and go shopping, and at least – you walk into [Name of shopping centre] and there's a vape shop right there and it's got the smells, it's got the lights, it's got all this; you go around the corner, "Oh look, two more vape shops"; you go around the corner, "Oh look, they have this free"; they're everywhere and every shop displays the vapes right at the window."*

- *"If a Year 7 goes to a parent and asks for £5 they can just go and get a vape".*
- *"children will buy the products that cost the least, so the chemicals in the vapes are likely to be the most damaging"*
- *"a corner shop you almost always see vapes being sold and advertised. This way young people can go and get a vape on the way to school or where ever they are going because there is mostly always a shop open that sell them"*
- *"selling them to underage kids, without any ID and often while wearing school uniform"*
- *"[*Do shops ID you*] – No, You can walk in there and they tell you to put it straight in your pocket and walk out"*
- *"some people will buy and sell vapes over platforms like snapchat, meeting the dealer at/outside of schools"*
- *"many of these students (who are underage), access them from older friends/ siblings"*
- *"buy vapes online, without needing any ID"*

Young people perceived that vaping was less harmful than smoking, whilst also acknowledging that the long-term effects of vaping are unknown. Young people felt the lack of knowledge of long-term effects, led their peers to dismiss the unquantifiable risk. Young people could identify potential risks (mouth and gum damage) and articulated that nicotine was the addictive component and discussed the impact they saw in their peers in class time:

- *"vapes such as "elf bars" come in a range of bright colours and flavours that children love so although children are aware of what could happen, they still find vapes really attractive and want to use them because they are this new thing that everyone is using so the consequences do not seem as much of a big deal."*

[Respondent 1]:	*[affects of nicotine addiction] Yeah, because they can't concentrate.*
[Respondent 3]:	*There are definitely people in the school who are affected like that.*
[Respondent 3]:	*They're more likely to not focus on lessons and cause more disturbances.*

- *"We haven't seen the long-term consequences of it and because of that, a lot of people think just believe it's better than smoking cigarettes".*

Young people also commented that their peers weren't vaping to stop smoking, but had directly started vaping and worryingly, young people identified that vaping was a gateway to smoking for some of their peers. Which supports recent research highlighting that young people who vape are more likely to become smokers in late adolescence:[11]

- *"There are loads of people vaping without smoking first. They are not trying to quit anything; they are just vaping."*
- *"No one vapes as a kid to quit smoking."*
- *"Some people who vape and then they um and then so they started vaping and then they picked up cigarettes because they found that when they were smoking actual cigarettes they were vaping less."*

- What engagement levers will be most effective for education resources?

Considering the limited amount of information available about vaping products, young people reported the need for evidence-based information about the contents as well as the addictive, long-term effects, and potential health risks associated with vaping, through social media platforms, schools, and packs of the devices. Young people discussed measures that their schools were implementing to educate them about vaping. This was relatively limited and our conversations with teachers and youth organisations show that there is a lack of evidence-based, easily accessible, engaging resources available. Since this work was conducted, both the PSHE and OHID have released educational resources.[12,13] Young people had suggestions and ideas for how best to deliver this information, key to this was involving young people in the messaging and making any sessions interactive and not simply fact giving. We know that simply giving information is not sufficient for people to change behaviour and this is particularly true for young people. Young people need experiential learning which is rooted in behaviour change theory. An example of this being done successfully for other contexts is the LifeLab "Science for Health Literacy" programme.[14] Discussions with teachers reveal the growing impact on schools trying to deal with the increasing numbers of students vaping:

- **[Teacher]**: *"Thought we'd got smoking nailed, now vaping has gone crazy"*
- **[Teacher]**: *"Students blatantly vaping in school, even getting them out in lessons"*
- **[Teacher]**: *"It's so easy to hide, the vapes are disguised and so small"*
- **[Teacher]**: *"There has been an explosion of vaping onsite"*

[11] Kelly BC, Vuolo M, Maggs J, et al E-cigarette use among early adolescent tobacco cigarette smokers: testing the disruption and entrenchment hypotheses in two longitudinal cohorts Tobacco Control Published Online First: 18 April 2023. doi: 10.1136/tc-2022-057717

[12] https://pshe-association.org.uk/resource/vaping
[13] https://campaignresources.phe.gov.uk/schools/resources/vaping-ks3-form-time-activities
[14] Woods-Townsend K, Hardy-Johnson P, Bagust L, Barker M, Davey H, Griffiths J, Grace M, Lawrence W, Lovelock D, Hanson M, Godfrey KM, Inskip H. A cluster-randomised controlled trial of the LifeLab education intervention to improve health literacy in adolescents. PLoS One. 2021 May 5;16(5):e0250545. doi: 10.1371/journal.pone.0250545. PMID: 33951086; PMCID: PMC8099135.

- **[Teacher]**: *"smoking used to be an illicit act of rebellion – students hiding behind the bike shed, but vaping seems to be much more acceptable and students don't make an effort to hide that they are vaping, the prevailing attitude seems to be that it's ok to do."*

- *"I think the messaging would be better coming from kids. I feel like coming from an adult it's not quite the same."*

- *"things that we can actually see, not just words, because we don't really listen to what we're being just told; if we actually see examples of what happens later on in life or what could be the damages of it, it could be more effective"*

[Facilitator]:	*How useful do you find that [youth organisation coming in to do a talk on vaping]?*
[Respondent 2]:	*Not useful.*
[Respondent 2]:	*I don't think I took anything away from it.*
[Respondent 4]:	*Yeah. I don't think it's enough to make kids stop doing it.*
[Respondent 3]:	*They didn't enforce it enough.*
[Respondent 2]:	*I think that was quite nice to listen to, nice to know, but no one cared. It was more like they were just reading it off. They weren't letting you know how dangerous it is; they were just kind of reading off the facts.*

- *This [school] is where the kids are at. This is where we spend most of our lives in here*

- *"I don't feel there's enough research on it like what the effects are over a long period of time. Like when we're adults we might be that person on that advert with the whole… like can't speak."*

An area highlighted by young people was the impact on the environment, this could also be a lever to tackle. Listening to, understanding and building on teenagers' values offers a way to motivate young people.[15] Children and young people were very aware of vape devices littering the floor, they linked this to a concern around climate change, but also discussed the fire hazard. Concerningly, young people discussed how they saw children and young people picking up discarded vapes and trying them themselves:

- *"Walking in most public spaces, you will see a lot of the litter is disposable vapes"*
- *"Disposable vapes contain lithium batteries which are damaging to the environment, so if it is sent to landfill or littered, it will damage and pollute wildlife. The plastic case will also not decompose."*
- *"I've seen year 6s pick them up off the ground and put their mouths on them."*

- How feasible and effective is it to co-create these resources with young people?
  We worked with 2 LifeLab Youth Panels across two school terms (24-weeks) to create a set of resources to support education settings and youth organisations in engaging and educating young people about vaping. The ideas and content for the resources was led by the young people, they used the insights from the focus groups, researched their own ideas and spoke with experts to inform the resources they were creating. These resources are freely available (https://lifelabonline.org/course/index.php?categoryid=72) and have been used in a variety of settings. We have partnered with VapeGuardian (https://vapeguardian.com/the-vaping-solution/) to allow these resources to be included in a package of support for schools when vape detectors are installed. We have demonstrated that young people are invested in contributing to solutions for the issues facing their generation and that by working with them directly, the resources created can be of direct relevance to that age group.

[Respondent 2]:	*"School and social media would be the best way."*
[Respondent 3]:	*"Yeah, I'd say school and social media."*
[Respondent 2]:	*"Because no one reads posters; no one reads newsletters; no one wants to listen to someone talk at them for ages about vaping*

- In addition to the Lifelab project, over the last decade studies have demonstrated that the health of future generations depends on the actions and decisions made by young people today – long before they are parents – in particular for boys in early puberty and mothers / grandmothers both pre-pregnancy and during pregnancy. For example we have repeatedly demonstrated that children born to fathers who themselves

[15] Strömmer, S., Shaw, S., Jenner, S., Vogel, C., Lawrence, W., Woods-Townsend, K., ... & Barker, M. (2021). How do we harness adolescent values in designing health behaviour change interventions? A qualitative study. *British Journal of Health Psychology*, *26*(4), 1176-1193.

started smoking during puberty have worse lung function and increased risk of asthma and obesity[16]. Last year we provided evidence for the biological mechanism underlying these observations, demonstrating epigenetic changes in the children of fathers who smoked before the age of 15[17]. These changes in the way DNA is packaged in cells (methylation) regulate gene expression (switching them on and off) and are associated with asthma, obesity and wheezing. While we cannot say at this point in time whether vaping will have the same effects, it does highlight that adolescence represents a particularly vulnerable period of life where environmental exposure can have consequences not just for the individual, but for future generation(s) to come.

6. Key messages

Explain how your research relates to a specific problem they are trying to solve. Focus on your 3 key messages as bullet points.

We cannot simply wait for a couple of generations to pass, to learn more about the long-term consequences of vaping for young people, as we did with smoking.

The effects of nicotine on epigenetic markers is being demonstrated now – this will create an inherited impact that is passed on to future generations – we are at risk of not only letting down this generation of young people, but also their children.

The consequences of nicotine addiction for young people is well documented, with every month delay, vaping becomes more normalised for young people and more children and young people are exposed.

Young people need to be involved in creating policy solutions to the issues facing their generation, it is not good enough for adults to recognise the problems they have facilitated and to assume they know the solutions. In order for change to happen, we have to understand the world as young people see it.

7. Policy Implications

Following our research with young people, and the experience of co-creating resources, and in light of the changing policy environment, we call upon policy makers to commit and act with urgency to protect the next generation.
The tobacco and vapes bill is a good first step, but to ensure that, as a society we are providing the best possible environments for young people to grow and thrive, we must be more ambitious.

1. Involve young people in making policy that will affect young people, include meaningful 2-way dialogue with young people to ensure policy is drafted that will be effective, it is not enough to simply 'listen and smile'.
2. Make nicotine containing vape products available as prescription only for the purposes of smoking cessation as implemented in Australia in 2021[18]
3. The requirement for additional consultation prior to action needs to be addressed. This is an urgent problem, with every month, week, day delay, more young people will become addicted, more young people will see

[16] Svanes C, Holloway JW, Krauss-Etschmann S. Preconception origins of asthma, allergies and lung function: The influence of previous generations on the respiratory health of our children. J Intern Med. 2023;293(5):531-549. doi: 10.1111/joim.13611.
[17] Kitaba NT, et al.. Fathers' preconception smoking and offspring DNA methylation. Clin Epigenetics. 2023;15(1):131. doi: 10.1186/s13148-023-01540-7.
[18] https://www.health.gov.au/topics/smoking-vaping-and-tobacco/about-vaping

vaping becoming normalised and the age of young people experimenting will continue to decrease with devastating consequences.

4. Rapidly bring forward legislation to ban the production of flavoured vapes, with 'cool' names that are appealing to children and young people
5. Ban advertising/display of vapes (not in shop windows)
6. Introduce stricter control for selling vapes – require shops to ask for ID and have spot checks and consequences if the law is broken
7. The empowerment of local authorities to issue on-the-spot fines is welcomed, but where will the resource for local authorities to implement this come from. It is not enough for central government to pass the burden of responsibility to local authorities, without additional resource.

8. More Information

A policy brief summarising this information can be found at DOI: 10.5258/SOTON/PP0065

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