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Investor Day | 14 March 2019



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SCIENCE SUPPORTING ACCELERATED DELIVERY

DR. DAVID O'REILLY | DIRECTOR, SCIENTIFIC RESEARCH

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Important Information

Forward-looking Statements (continued)

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Our vapour product Vuse, and oral products Grizzly, Camel Snus and Kodiak, which are only sold in the US, are subject to FDA regulation and no reduced-risk claims will be made to these products without agency clearance.

Revision

For presentation purposes within this presentation, all prior periods have been revised to be consistent with the current reporting structure. All of the information in this presentation is in respect to continuing operations, revised for the fully retrospective adoption of IFRS 15.

DR. DAVID O'REILLY

DIRECTOR, SCIENTIFIC RESEARCH



30 Yrs
Industry
experience

*Joined the
Group in
January 1991*

*Management
Board since
January 2012*

Key messages

1

We are developing a strong scientific foundation to underpin our PRRP portfolio and we are making good progress at closing any remaining gaps

2

Science is powering our technology and product innovation. For example, we have used science to develop a potentially game-changing vapour technology

3

Our science is enabling us to make and defend hundreds of consumer-facing claims as well as underpinning our regulatory submissions

4

We are building even more trust in our PRRPs by amplifying our science through extensive communication

Our scientific research is extensive and underpins our broad portfolio of PRRPs¹



¹ We use the term PRRPs to cover tobacco and nicotine products that, based on the available science, have been shown to be reduced risk; are likely to be reduced risk; or have the potential to be reduced risk, in each case if switched to exclusively as compared to continuing to smoke cigarettes.

Substantially reduced toxicants is not sufficient alone to determine reduced risk

Current overall state of the science of our PRRP portfolio

- **THP** | Our scientific evaluation to date suggest our THP product, glo has the potential to be significantly less risky than cigarettes and we are establishing more evidence to support this
- **Vapour** | Several independent bodies ¹ have concluded that vaping can be considered to be ~95% safer than smoking cigarettes
- **Hybrid** | Our Hybrid product, glo iFuse has a very similar emissions profile to our vapour products
- **US Moist Snuff and Swedish Snus** ^{2,3} | These have epidemiological evidence that supports their reduced risk status as compared to smoking cigarettes
- **Modern Oral** | Products such as Epok and Lyft have lower levels of toxicants than traditional tobacco oral products and therefore arguably have the potential to be even lower risk

¹ Such as the Royal Collage of Physicians and Public Health England

² Lee PN, Hamling, J (2009). Systematic review of the relation between smokeless tobacco and cancer in Europe and North America. BMC Medicine 7: 36.

³ Bofetta P, Hecht S, Gray N, Gupta P and Straif K (2008). Smokeless tobaccos and cancer. Lancet Oncology 9: 667-675.

Our vapour product Vuse, and oral products Grizzly, Camel Snus and Kodiak, which are sold in the US, are subject to FDA regulation and no reduced-risk claims will be made as to these products without agency clearance.

There is growing external support for PRRPs, especially vaping and oral – science on THP continues to be developed

› Broader regulatory support for vaping and markets going from prohibition to regulation



GOVERNMENT OF CANADA

“Switching from tobacco cigarettes to vaping products will reduce a person’s exposure to many toxic and cancer-causing chemicals”



NEW ZEALAND MINISTRY OF HEALTH

“Smokers switching to vaping products are highly likely to reduce their health risks and for those around them”

› Slower growing support for THP, science still being undertaken mainly by the industry



REPORT OF THE UK PARLIAMENTARY SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY

“‘Heat-not-burn’ products contain tobacco which is heated rather than combusted, and is therefore likely to be less harmful compared to conventional cigarettes. This (industry) research therefore needs to be independently validated before it is used to inform policy, but nevertheless pointed to an early evaluation of likely cancer risk which assessed heat-not-burn products to have about 10% of the harm of conventional cigarettes”

Multiple scientific studies have been undertaken on all our PRRPs and we have made great progress to date



| Epidemiology | | VAPOUR | THP | ORAL |
|-----------------------------|--------------------------------------|----------------|-------------|------|
| Population risk reduction | Post market surveillance | n/a | n/a | ✓ |
| | Consumer perception study | In preparation | ✓ | ✓ |
| Individual risk reduction | System Science | ✓ | ✓ | n/a |
| | Biomarker of effect study | In preparation | In progress | n/a |
| Toxicant exposure reduction | In vitro models of disease | ✓ | ✓ | ✓ |
| | Exposure & pharmacokinetic studies | ✓ | ✓ | ✓ |
| | Computational toxicology | ✓ | ✓ | n/a |
| Stewardship science | In vitro regulatory toxicology | ✓ | ✓ | ✓ |
| | Chemical & physical characterisation | ✓ | ✓ | ✓ |
| | Product design stability | ✓ | ✓ | ✓ |

Epidemiology studies for Oral Products have not been conducted for all Brands shown.



WHAT IS NEW IN OUR THP SCIENCE?

We are making good progress with our long-term clinical study on glo



STUDY DESIGN

- › Multi-centre 12-month clinical trial in the UK
- › Compares continue to smoke, switch to glo and quit completely
- › Measures biomarkers of both exposure and biological effect

PARTICIPANT COMPLIANCE IS KEY

- › Intense focus on participant compliance
- › Using a unique biomarker to monitor and segregate solus users

REPORTING POINTS

- › Will report after 90 days, 180 days and 360 days
- › Anticipated publications due:
 - 90 days – 2019
 - 180 days – 2020
 - 360 days – 2021

We have submitted a large dataset to the Italian Health Ministry on the reduced risk potential of glo to gain PRRP claims

More than **4000 pages** of documentation

26 separate studies

Studies include chemistry, *in vitro* toxicology, indoor air quality, clinical biomarkers, pharmacokinetics, likelihood to use and population modelling

Will be supplemented with long-term clinical data on changes in biomarkers of exposure and relative risk as this becomes available

- › Italy is the **only country outside of the US** with a **regulatory procedure to consider reduced risk**
- › Submitted at end of 2018 **in accordance to Article 20** of Legislative Decree **No 6 of 12 January 2016**
- › Licencing process **based on a 135 day procedure**; formal response expected May 2019

We have completed our first post-market surveillance study in Japan that will help show the potential positive effects of glo on population health

セクション G. ご自身の健康について

ここから、あなたご自身の健康状態についてお伺いいたします。
タバコ製品の喫煙有無にかかわらず、すべての方がお答えください。

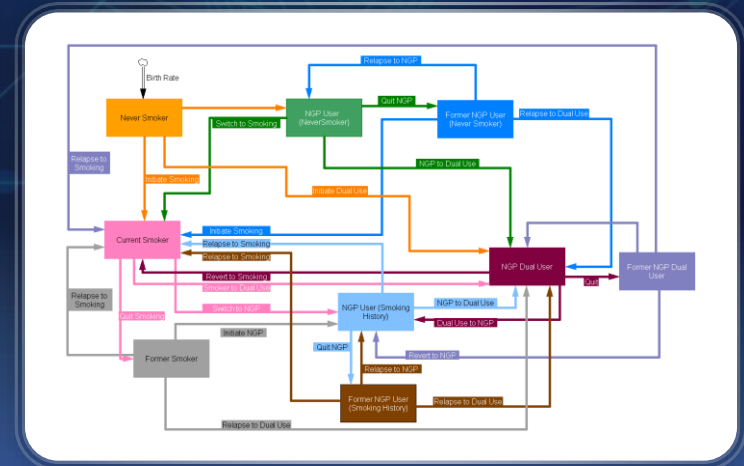
問1. あなたは、最近1年間に、以下に挙げる18の症状・状態を経験したことがありますか？
経験したことがある項目1~18(どれも経験していない場合は19)に○をつけてください
(○はいくつでも)

問2. また、経験した症状・状態について、最近1年間で状態は変わりましたか。問1で選ん
いで、それぞれあてはまるものをお選びください。
特に変化がなかった場合は「変わらない」に○をつけてください。(それぞれ○は1つずつ)

<記入例>
これまで歯の黄ばみや茶渋があったものの、その状態がここ1年間で多少良くなった場合は、以
下に「やや良くなった」を選びます。

| 最近1年 に経験し たもの | 問2 | | | |
|---------------------------------------|------------------|-----------------|-----------|---------------------|
| | 非常に 悪く なった | やや 悪く なった | 変わ らない | やや 良く なっ た |
| 歯の着色汚れ(黄ばみ、茶渋など) | 1 | 2 | 3 | 4 |
| 味覚の問題 | 1 | 2 | 3 | 4 |
| 嗅覚の問題 | 1 | 2 | 3 | 4 |
| 口臭 | 1 | 2 | 3 | 4 |
| 口の中が嫌な味がする | 1 | 2 | 3 | 4 |
| 舌苔の不調 | 1 | 2 | 3 | 4 |
| 喉の炎症・ヒリヒリする | 1 | 2 | 3 | 4 |
| 風 | 1 | 2 | 3 | 4 |
| 顔のお肌のキメ、ハリ(肌の老化) | 1 | 2 | 3 | 4 |
| 皮膚や手のシミ | 1 | 2 | 3 | 4 |
| ニオイ | 1 | 2 | 3 | 4 |
| 室内や部屋の衣製品に付いた嫌なニオイ | 1 | 2 | 3 | 4 |
| 髪や衣服に付いた嫌なニオイ | 1 | 2 | 3 | 4 |
| 腫 | 1 | 2 | 3 | 4 |
| 喀痰(呼吸時にゼーゼー、ヒューヒューな ど音がして息苦しさを感じる) | 1 | 2 | 3 | 4 |
| 早朝に咳が出る | 1 | 2 | 3 | 4 |
| 慢性的な咳 | 1 | 2 | 3 | 4 |
| 痰や高熱、その頻度 | 1 | 2 | 3 | 4 |
| その他の症状 | 1 | 2 | 3 | 4 |
| 脈脈(心拍数増加・脈が速くなる) | 1 | 2 | 3 | 4 |
| 運動能力の低下 | 1 | 2 | 3 | 4 |
| ニコチン中毒 | 1 | 2 | 3 | 4 |
| 何も経験していない | 19 | | | |

- Our population model can inform regulators of the potential reduction in the number of premature years of life lost because of the introduction of a PRRP
- Post-market surveillance studies provide real data to refine the model's assumptions





WHAT IS NEW IN OUR VAPOUR SCIENCE?



A revolutionary advance from coil-and-wick to proprietary new-to-world distiller plate technology

EXISTING COIL-AND-WICK TECHNOLOGY

- › Absorbent wick
- › Electrical heating coil
- › Small surface area
- › Risks of dry out
- › Variable particle size

GEN1 glass fibre



GEN2 cotton



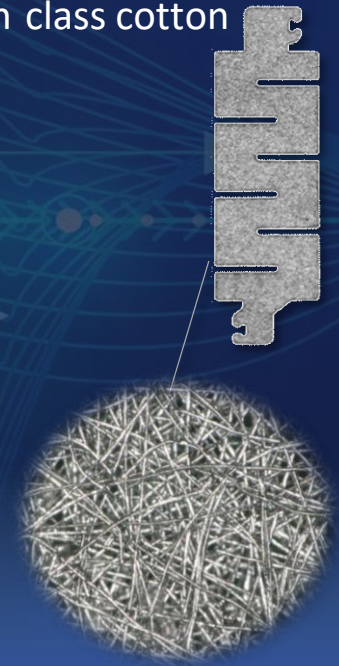
GEN3 ceramic



DISTILLER PLATE PROPRIETARY TECHNOLOGY

- › **10x** larger surface area vs. best in class cotton wick (ePen3)
- › Large aerosol particle size range
- › Advanced temperature control
- › Dynamic wicking
- › Improved sensory performance
- › Improved consumer satisfaction
- › Less e liquid nicotine required

Steel matrix x200 magnification



Vype iSwitch with distiller plate technology gives improved consumer satisfaction with less nicotine, more aerosol and with much lower toxicants



Vype ePen2

Gen1 nicotine salt
Core flavours



Vype ePen3

+ Gen2 nicotine salt
+ Premium flavour collections
+ Biomimetic technology



Vype iSwitch

+ Tailored nicotine salt
+ Increased particle size = high flavour impact with 18mg nicotine, satisfaction with 3mg liquid
+ No burnt taste

95% less toxicants¹

99% less toxicants¹

99.8% less toxicants¹

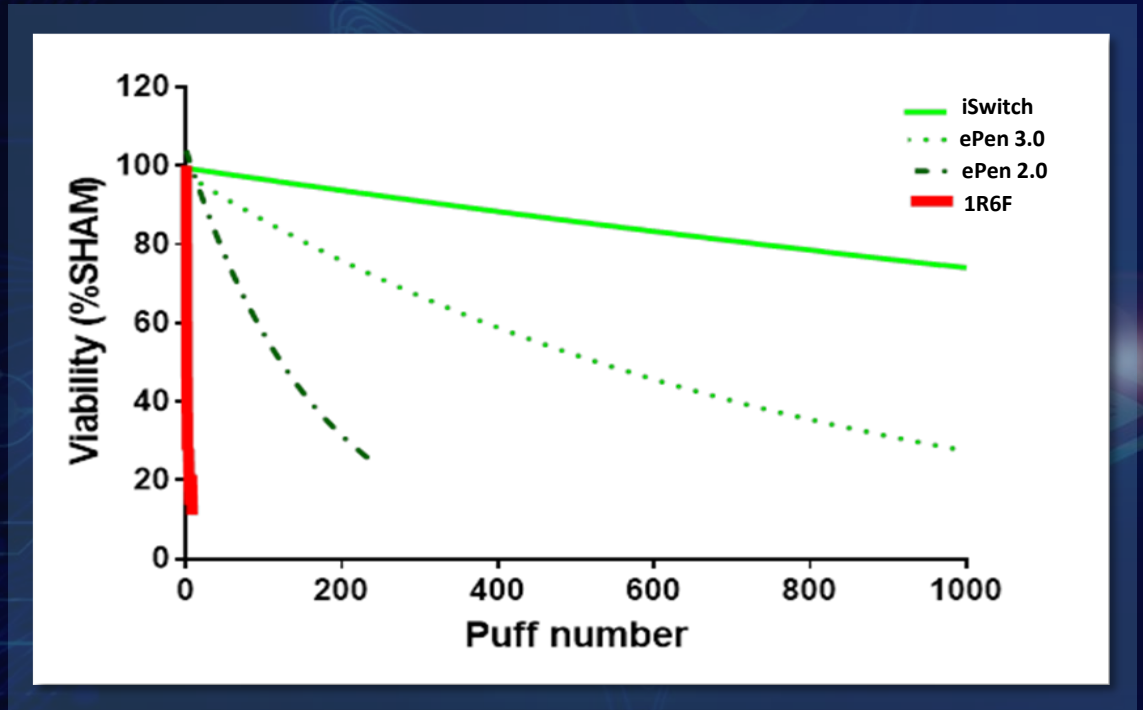
¹ When compared to a reference cigarette and measuring WHO TobReg9 toxicants

Substantially reduced toxicants is not sufficient alone to determine reduced risk

Vype iSwitch - Unprecedented reductions in biological activity seen to date in our laboratory tests of vapour products

| Comparisons | Number of lung-disease-relevant genes perturbed |
|--------------------------------------|---|
| Air vs Reference Cigarette* (24 hrs) | 5603 |
| Air vs Vype iSwitch (24 hrs) | 0 |

Vapour from Vype iSwitch had no impact on lung disease relevant gene perturbations in a 3D cellular system using human airway epithelial cells



In extremis *in vitro* testing for cytotoxicity shows all Vype products are much less toxic than cigarette smoke, with Vype iSwitch the least toxic

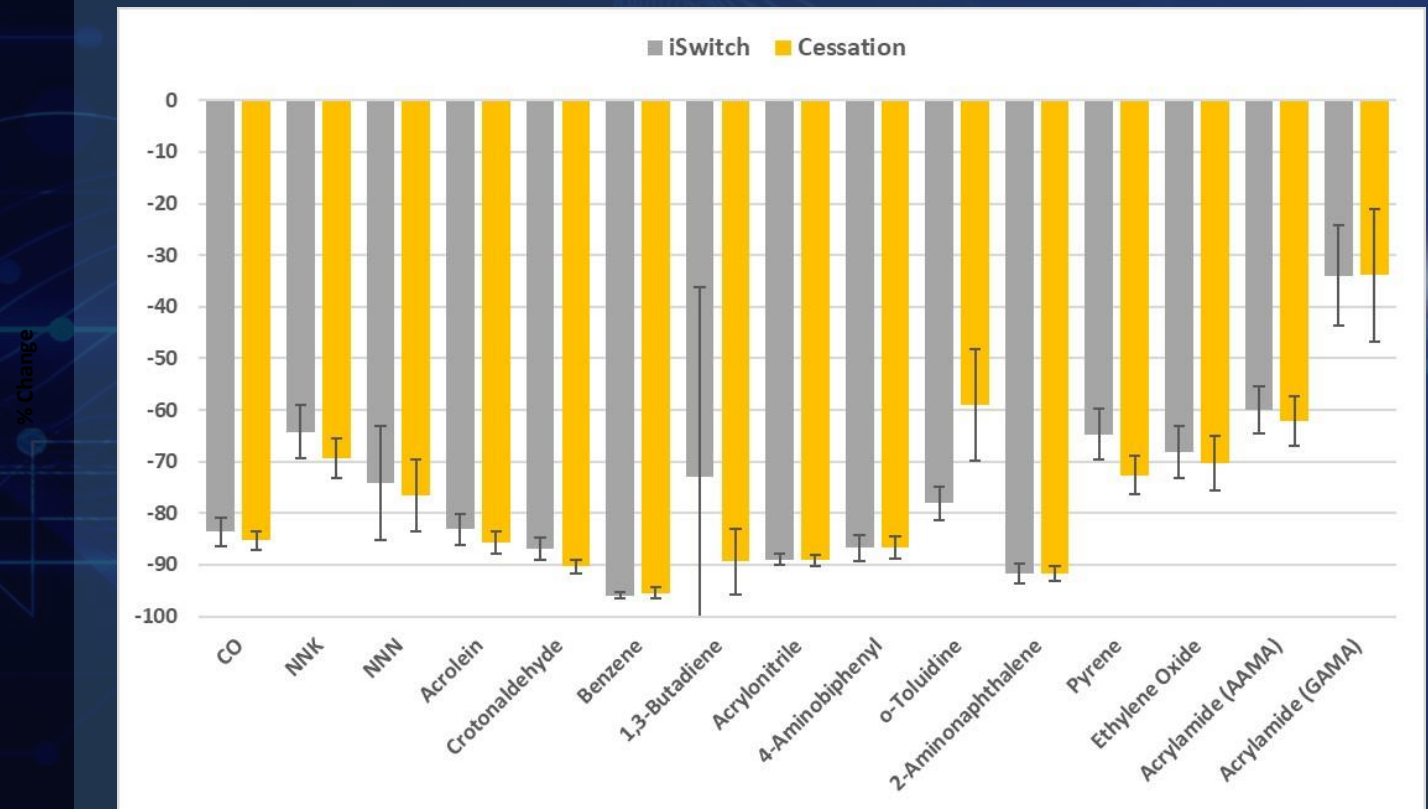
* Reference cigarette used 1R6F

These results are not sufficient alone to determine reduced risk

First clinical study on Vype iSwitch confirms large reduction in toxicant exposures

AVERAGE % REDUCTIONS FROM BASELINE

- › 14 BoEs for cigarette smoke toxicants measured
- › All BoEs significantly reduced for subjects switching to Vype iSwitch*
- › In most cases BoEs reduced to levels similar to cessation

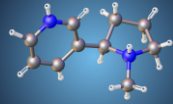


*o Toluidine significant after one inexplicably high value removed from cessation arm (sensitivity test)

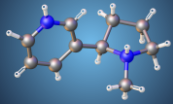
Gaça, M & Proctor, C. Application of *in vitro* processes for the assessment of next generation tobacco and nicotine products: a tobacco company perspective. Oral presentation at Society of Toxicology, 13 March 2019. www.bat-science.com/library/invitro

These substantially reduced toxicant exposures are not sufficient alone to determine reduced risk

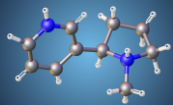
We have extensive experience in nicotine salts and were the first to use this technology commercially in 2012



The use of nicotine salts in e-liquids delivers a more satisfying and intense vaping experience that is closer to smoking a conventional cigarette. This is important for some, but not all consumers

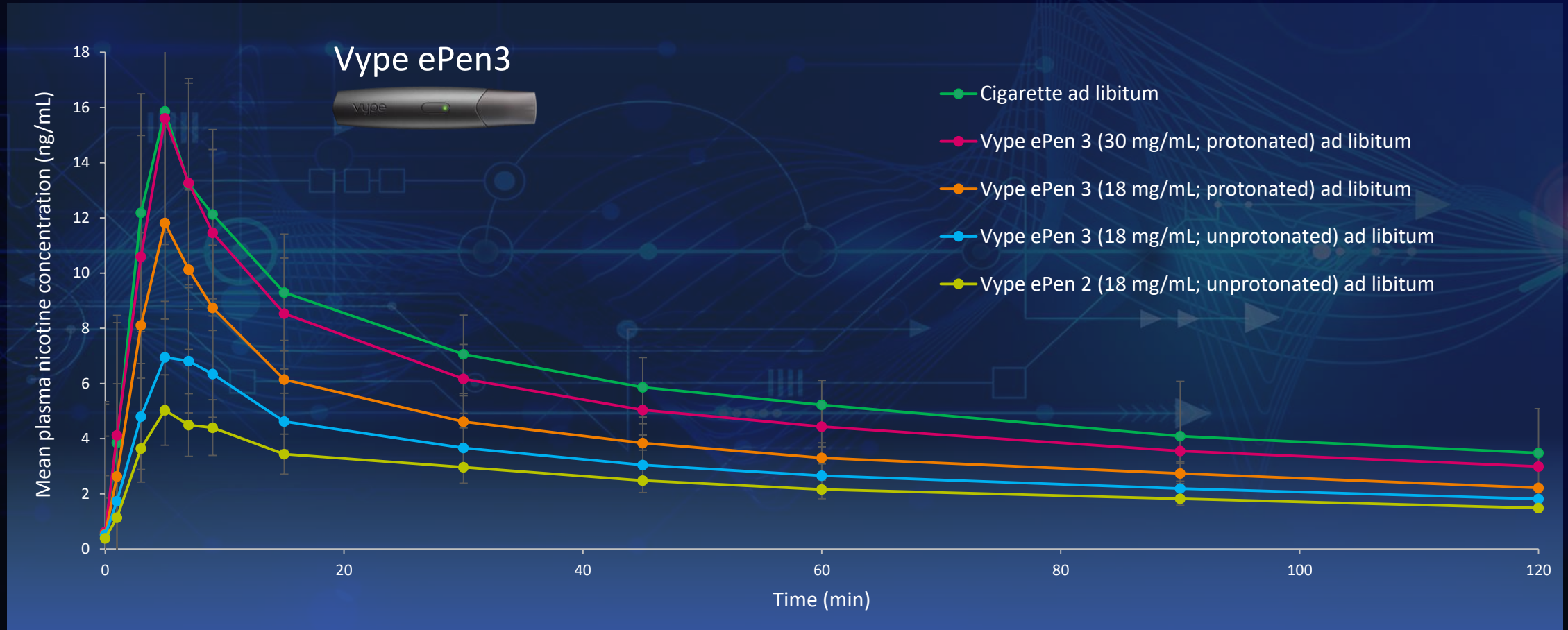


Nicotine salts are more stable and remain in the vapour particles for longer allowing an uptake profile more similar to a cigarette



Nicotine salts are created with the addition of carefully selected compounds to the nicotine base. Creating a form of nicotine naturally found in tobacco leaf and smoke

Nicotine salts in conjunction with device and e-liquid improvements have allowed us to achieve nicotine delivery closer to that of a cigarette



Ebajemito, JK et al., unpublished data.



MODERN ORAL

Modern oral – potentially even lower risk than snus

- › Epok and Lyft have a fraction of the levels of toxicants than traditional Swedish snus
- › Snus has been shown to be reduced risk compared to smoking through long-term epidemiology
- › We have begun the science to inform additional consumer facing claims for Modern oral



CONSTITUENT LEVELS (SNUS V EPOK)



SCIENTIFIC ENGAGEMENT AND COMMUNICATION



We actively guide R&D activities enabling product risk to be characterised and minimised as much as possible

We know it is important to offer a range of products including tobacco, heating products, snus, e-cigarettes and licensed nicotine products because consumer needs vary



We are communicating to consumers about the safety, quality and performance of our products with hundreds of science-based claims

As at end of February 2019

VAPOUR

498 claims supported
by **23** scientific
publications

+650% vs. Oct 17



THP

286 claims supported
by **23** scientific
publications

+750% vs. Oct 17



Substantiating claims relating to:

Toxicant Reduction

Indoor Air Quality

Hygiene

Consumer/
Sensory/Design

Product
performance

Our award-winning Science and Technology Report 2017/18

Leading the way in transparency and communication and building trust and credibility in our PRRPs



KEY CLINICAL STUDIES

Blood nicotine levels in cigarette smokers

Y-axis: Blood nicotine levels (ng/ml) | X-axis: Time (hours)

Legend: Type after (orange), Cigarette (blue)

Pepper-based nicotine levels reach three times when they smoked a cigarette.

Smokers who switched completely from smoking cigarettes to using the experimental device

Y-axis: Nicotine levels (ng/ml) | X-axis: Time (days)

Legend: cessation (orange), smoking (blue)

Subcutaneous nicotine levels for two days, then one week

Y-axis: Nicotine levels (ng/ml) | X-axis: Time (days)

Legend: cessation (orange), smoking (blue)

Smokers experience related cigarette smoke emissions are significantly reduced after switching to glo.

WINNER! 2018 Best eBook DotCOMM awards

Powering the power of innovation

Many of my friends couldn't believe the number of courses I had been on, BAT really invests a great deal in their placement students.

QUICK FACTS

- 100% of glo PRRPs are female
- 100% of glo PRRPs are from diverse backgrounds
- 100% of glo PRRPs are from diverse backgrounds

Our flagship tobacco heating product glo

INSIDE BAT - PEOPLE Transforming our workforce

QUICK FACTS

- 100% of glo PRRPs are female
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Making science a key component of our market launches



BBC HORIZON UK



CBC 5TH ESTATE CANADA



ABC 60 MINUTES AUSTRALIA



Product launches – media interviews – roadshows – conference presentations – and other stakeholder engagements

Summary

- › Science is powering our Transforming Tobacco journey
- › We are near completion of the full testing programme for glo, with a long-term clinical study underway
- › We have been using our nicotine salts science for several years across our vapour portfolio
- › With Vype iSwitch we have shown that it is possible to both significantly improve satisfaction and reduce toxicant emissions compared to existing vapour products
- › Modern oral products like Epok and Lyft have the potential to be even lower risk than snus
- › Our science is enabling us to make and defend hundreds of consumer-facing claims as well as underpinning our regulatory submissions
- › We are building even more trust in our PRRPs by amplifying our science through extensive communication



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Thank you.