

Advice on actions for suspected ingestion of nicotine e-cigarette vaping liquid

This brief information is to support staff delivering care in health and justice settings. As re-chargeable e-cigarettes are being made available for purchase by prisoners, this briefing provides some background information about these devices and also how to manage cases of suspected ingestion of the vaping liquid.

ALERT BOX

All patients who have taken a deliberate overdose or who have ingested 0.2 mg/kg or more nicotine, or those who are symptomatic, should be referred for medical assessment.

Emergency transfer to hospital is needed if signs and symptoms of toxicity are present or develop.

People aged 13 and over or adults who have accidentally ingested less than 0.2 mg/kg nicotine and who have no new symptoms since the time of ingestion do not need to be referred for medical assessment. Patients should be advised to seek medical attention if symptoms develop.

Signs and Symptoms for nicotine toxicity

Early features of ingestion include burning in the mouth and throat, nausea, vomiting, confusion, dizziness, weakness, hypersalivation, sweating and increased bronchial secretions. There may be sympathetic features including tachycardia, tachypnoea, hypertension and agitation followed by bradycardia, systemic hypotension and respiratory depression. More severe poisoning can lead to arrhythmias including atrial fibrillation, coma, convulsions and respiratory and cardiac arrest.

Skin contact may lead to irritation with a level of absorption dependent on the length of exposure and concentration. Systemic features may follow.

Refills can be mistaken for **eye drops** and administered accidentally. Eye contact with liquid may lead to irritation and lacrimation

Actions to take if systemic toxicity suspected or present

Ingestion:

- Maintain a clear airway and ensure adequate ventilation
- In the event of cardiac arrest commence CPR and call an ambulance

Skin Exposure:

- Remove soiled clothing and any nicotine patches. Thoroughly wash contaminated skin with soap and water. If features of systemic toxicity are present, manage as per ingestion above

Eye Exposure:

- Gently bathe eye(s) with water, to remove any residue, and seek advice in case of significant irritation
- If features of systemic toxicity are present, manage as per ingestion

Advice for treating pregnant women

Treatment of the pregnant patient should be the same as for the non-pregnant patient. Following nicotine poisoning in a pregnant patient, maternal toxicity is likely to be a major determinant of foetal risk. Where treatment of maternal symptoms is clinically indicated, this should not be withheld on account of pregnancy.

Due to a lack of data concerning how nicotine poisoning can affect the foetus, it is not currently possible to predict the nature or likelihood of adverse events occurring in the developing foetus. In all cases of nicotine poisoning in pregnancy, enhanced maternal and foetal monitoring may be warranted. Discussion with UK Teratology Information Service (UKTIS) is recommended in all cases.

E-cigarettes and vaping devices - Background on products and toxicity

E-cigarettes and vaping devices (EC) use battery power to heat an element to disperse a solution that usually contains nicotine. The dispersion of the solution leads to the creation of an aerosol that can be inhaled by the user. The heated solution typically contains propylene glycol or glycerine, nicotine, and flavourings. EC do not contain tobacco, do not create smoke and do not rely on combustion. EC products available in prison contain a maximum of 20mg/ml of nicotine. Vaping products not compliant with UK regulation have been known to contain up to 100 mg/mL so the toxicity risk is significantly increased.

The information about products available at 1st December 2017 for purchase in HM prisons is shown in the HMPPS factsheet in Appendix 1.

Fatal poisoning from nicotine is extremely rare but with the increase in EC use, there has been an increase in calls to poison centres following accidental exposures. These remain lower than calls following such exposure from tobacco and none resulted in any serious harm (PHE 2015). Serious nicotine poisoning seems normally prevented by the fact that relatively low doses of nicotine cause nausea and vomiting, which stops users from further intake.

Evidence exists that suggests that nicotine is highly toxic by ingestion, inhalation and skin contact, although the fatal dose in adults is not clear from published evidence (Baselt, 2008; Lavoie and Harris, 1991, PHE 2015). Nicotine can be very rapidly absorbed with CNS, neuromuscular and autonomic features. Symptoms may persist for up to 72 hours in severe cases of poisoning (Davies et al, 2001). The half-life of nicotine ranges from 24 minutes to 2 hours (Feyerabend et al, 1985; Baselt, 2008).

References

Public Health England (PHE) 2015: E-cigarettes – an evidence update: A report commissioned by Public Health England ([link](#))

Public Health England 2017 submission to the House of Commons Science and Technology Committee for up to date TOXBASE and NPIS data on enquiries relating to e-cigarettes.([link](#))

Baselt RC. Disposition of toxic drugs and chemicals in man. 8th Ed. Biomedical Publications: Foster City, California, 2008. p 744-748.

Lavoie FW, Harris TM. Fatal nicotine ingestion. J Emerg Med 1991; 9: 133-136. [Click here for abstract](#)

Feyerabend C, Ings RMJ, Russell MAH. Nicotine pharmacokinetics and its application to intake from smoking. Br J Clin Pharmacol 1985; 19: 239-247.

TOXBASE <https://www.toxbase.org/> : Nicotine toxicity information accessed 24th November 2017.

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Appendix 1: USE OF VAPING DEVICES IN PRISONS (HMPPS circular NOVEMBER 2017)

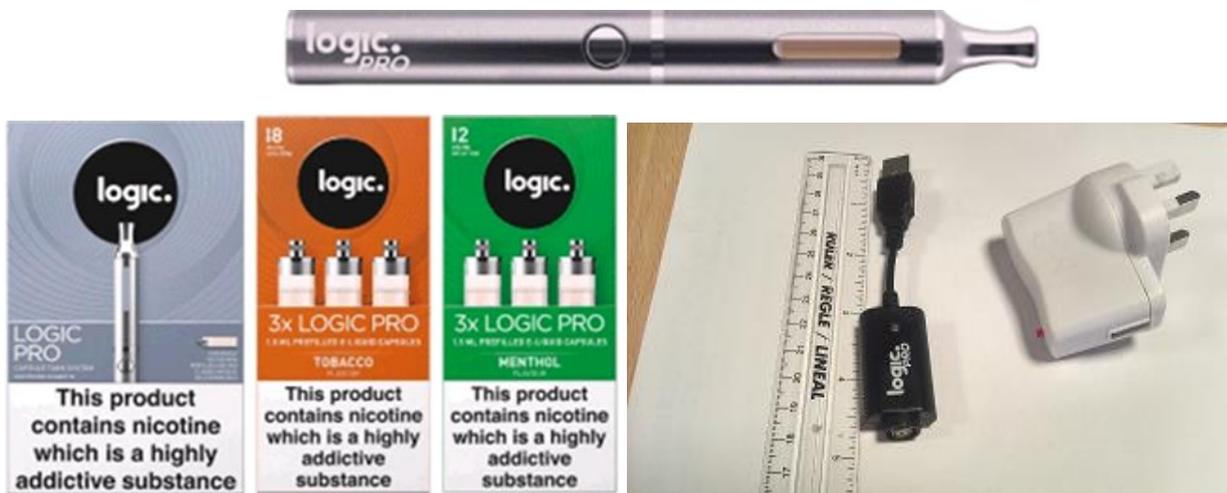
A FACTSHEET FOR GUIDANCE OF STAFF IN PRISONS

HMPPS have agreed to make the rechargeable vaping devices piloted in Wales available across the whole estate. Vape devices are now available through the canteen and as a reception pack in all prisons apart from the under 18 estate.

This factsheet is intended to provide briefing on the product and processes to be followed.

The approved available product

- The product is the Pro-Logic rechargeable vape device which can be refilled using pre-sealed capsules and is recharged using a USB adapter (see below).



A6 Poster describing how to use the Pro-logic product:



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PrisonSpecial_Vaping

Vape Technique

- Vapes play an important part in the smoke free roll out.
- To support prisoners to get the most benefit from vapes, as well as value for money, it is recommended that information and support is provided to show them how to use the vape device correctly.
- An information leaflet is included with the product, but prisoners have found additional support useful.
- A leaflet 'Using your E-Cigarette' detailing how to use an e-cigarette has been produced and can be found on the 'Smoke Free Prisons' group intranet page via this link - <https://intranet.noms.gsi.gov.uk/groups/smoke-free-prisons/smoke-free-e-cigarette-posters>.

Pricing

- Vape products are sold separately and prisoners will need to buy a vape device, a USB charging plug and a supply of refillable capsules to get started.
- Following this they will only need to buy the refillable capsules each week. Best advice suggests that on average one capsule should last one to two days, dependent on use.
- The start-up costs are outlined in the table below:

M220674	Logic Pro Device	n/a	£6.99
M220672	Logic Pro Capsules 3pk Tobacco	18mg	£3.99
M220649	Logic Pro Capsules 3pk Menthol	12mg	£3.99
M221514	USB Charging Plug	n/a	£2.99

- Due to the initial costs of a starter vape pack, some prisons are offering a range of ways to pay including payment plans for those with limited funds. Suggested payment options include:
 - Direct payment from Spends Account
 - Direct payment from Private Account
 - Savings Scheme – an agreed amount of money is set aside each week until sufficient funds are available
 - Payment plan – prison advances the costs of a starter pack, which is repaid in small amounts each week
- Phil Cople and his Executive Team have decided that payment schemes must be in place for those with insufficient funds. Where advances are used, recovery of the monies is at a rate similar to that currently used for tobacco reception packs.

Vape Product Range

- New vape devices are currently being tested and there are plans to provide refill capsules in different flavours and strengths during January 2018.
- Changes to the product range are expected in early 2018 and these will be communicated to establishments by Prison Retail.

Purchase and Possession Limits

- Prisoners will be able to buy 1 device, 1 charger and 3 refill packs via the canteen each week; in possession limits can be determined locally.
- It is possible that prisoners will share chargers to save money and you will need to take a view on the acceptability of this practice.
- Once ordered, the Pro Logic device and USB adaptor will be delivered to your reception unless you make local arrangements to have these items placed in canteen bags. It can be added to the individual's property card and a selection of capsules will be included in the buffer box.

Returns Policy

Within 28 days -

If a product was purchased within 28 days and this is the first time they have returned this product then an automatic refund / replacement will be issued.

After 28 days -

- Return from prisoner, Workshop Managers discretion if a credit should be issued (due to value of product)
- Any reported as faulty to be returned to the workshop manager. These will then be sent to Booker's HQ in Hatfield
- Booker will then log the product and send on to Supplier for investigation / testing
- The supplier will provide a report which will be made available to HMPPS and DHL for onward communication

PAT Testing

- During the trials in Wales HMPPS were informed that there is no legal obligation to PAT test these products. Establishments that have a DHL main workshop will have a stock of USB adaptors and Pro Logic devices in their High Value Room.

Transfers

- In cases where a prisoner in possession of a vape is moving between prisons, any vaping device, USB adaptor plug and unused refill capsules will be managed as in-possession property.

Risk Management

- In line with the Minimum Service Officer (MSO) for Stop Smoking Services and Support in Custody, Governors are reminded that a risk assessment is required for all smokers who have specific challenges around co-morbidity and risk.
- Examples include substance misuse, learning difficulties, self-harm, mental health, long term significant tobacco use or prescribed specified medications to ensure nicotine withdrawal is appropriately managed and medication adjustments are made when they stop smoking. This includes those who choose to purchase e-cigarettes, vapes or NRT from the prison canteen.
- Please ensure you have robust information sharing processes in place with Heads of Healthcare to manage high risk individuals who stop smoking.

Sharing Vapes

- The risk of transmission of disease from sharing vaping devices is small, however it is possible for blood or saliva to be passed between individuals sharing a vape device so we do not recommend the sharing of these products.

Suspected side effects and safety concerns

- The Medicines & Healthcare products Regulatory Agency (MHRA) is working with Trading Standards to ensure products on the UK market meet acceptable safety standards. In a recent update, the

MHRA have requested that any adverse effects experienced by people using e-cigarettes or vapes be reported to them using the Yellow Card reporting system.

- This includes reporting defects and harm to non-users and children, e.g. accidental poisoning.
- The process for reporting adverse effects from e-cigarettes or vapes in custody should be agreed with your Head of Healthcare.

Controls

- During trials, vape products were absorbed into the prison economy very quickly so systems to control and manage access to vapes and mitigate the risks associated with theft, debt and the illicit economy are required.
- Some prisons have introduced a range of controls, either in combination or individually, to support the successful introduction of vapes such as:
 - Etching vape devices & plugs with prison and issue number
 - Recording on property cards
 - Vape Compacts

Further advice and contacts

Any problems or queries please contact any member of the National Smoke Free Team:

- Bernie Lauff: E-Cigarettes lead (Bernie.lauff@hmpr.gsi.gov.uk)
- Charlotte Wright: National Project Lead (charlotte.wright@hmpr.gsi.gov.uk)
- Steve Crane: Retail Support Manager (steven.crane@noms.gsi.gov.uk)
- Samantha Hughes: Health, Well Being and Substance Misuse Lead (Samantha.hughes@noms.gsi.gov.uk)