



# Pseudoephedrine and ephedrine: managing the risk of medicines misuse

## MHRA UK Public Assessment Report

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## PLAIN LANGUAGE SUMMARY

**Key message:** In 2008, legal measures were introduced in the UK to manage the misuse of medicines containing pseudoephedrine or ephedrine. A review of evidence conducted in 2015 shows that the measures are continuing to effectively manage the risk of misuse of these medicines.

### Background

The Medicines and Healthcare products Regulatory Agency (MHRA) is the government agency responsible for regulating medicines and medical devices in the UK. We continually review the safety of medicines and vaccines in the UK. We inform healthcare professionals and the public of the latest updates through several means, including public assessment reports.

The following report presents the 2015 review of the impact of measures introduced to control the potential misuse of medicines containing pseudoephedrine, or ephedrine. These measures were introduced in 2007–2008, and their impact has been reviewed yearly.

Pseudoephedrine and ephedrine are nasal decongestants<sup>a</sup> contained in many cough and cold medicines sold over-the-counter (OTC) in UK pharmacies. There is concern that pseudoephedrine and ephedrine can be extracted from these medicines and used in the illegal manufacture of the [Class A controlled drug](#) methylamphetamine.<sup>b</sup> Methylamphetamine is a highly addictive drug which affects the central nervous system and can cause serious physical and psychological harm.

This concern prompted a [public consultation](#) in 2007, following which the [Commission on Human Medicines](#)<sup>c</sup> (CHM) advised that several measures should be introduced to control the supply of OTC medicines containing pseudoephedrine and ephedrine. These measures included reducing the pack size for OTC medicines containing pseudoephedrine and ephedrine, and restricting sale to one pack per transaction.

The CHM also advised that a Working Group should be set up to monitor the effectiveness of the pharmacy controls, and to advise the CHM on other measures to minimise the misuse of OTC medicines containing pseudoephedrine or ephedrine. The Working Group was established in September 2007.

Based on recommendations from CHM, following advice from the Working Group, and a further [public consultation in October 2007](#), the legal sales restrictions were put in place in the UK on April 1<sup>st</sup> 2008 which made it illegal to sell or supply:

- any product that contains more than 720 mg pseudoephedrine or 180 mg ephedrine without a prescription
- a combination of medicines that between them add up to more than 720 mg pseudoephedrine or 180 mg ephedrine without a prescription
- a medicine that contains pseudoephedrine and a medicine that contains ephedrine in one transaction

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<sup>a</sup> Drugs which help to clear a blocked nose

<sup>b</sup> Commonly known as ‘methamphetamine’, ‘crystal meth’ or ‘ice’

<sup>c</sup> An independent body which gives advice to UK government Ministers about the safety, quality, and efficacy of medicines

In addition, the [Royal Pharmaceutical Society](#) (RPS), formerly known as the Royal Pharmaceutical Society of Great Britain, issued guidance that the sale and supply of medicines containing pseudoephedrine or ephedrine must only be carried out by pharmacists or suitably trained pharmacy staff under the supervision of a pharmacist.

## Impact of restrictions and CHM recommendations

Each year from 2009, the CHM has reviewed the evidence of the impact of these measures to control the misuse of pseudoephedrine or ephedrine-containing medicines. Four public assessment reports giving full details of the evidence and the CHM's conclusions are available:

- [Controlling the risk of misuse of medicines containing pseudoephedrine and ephedrine](#)
- [Pseudoephedrine and ephedrine: managing the risk of misuse of medicines – July 2010 update](#)
- [Pseudoephedrine- and ephedrine-containing medicines: 2011 review of actions to manage the risk of misuse](#)
- [Pseudoephedrine- and ephedrine-containing medicines: 2012 review of actions to manage the risk of misuse.](#)

The evidence presented in these reports showed that the measures were helping to contain the potential problem of misuse, and that the sale of medicines containing pseudoephedrine or ephedrine had reduced.

In 2012 CHM recommended that MHRA should continue to monitor the situation and report only significant adverse changes to CHM. A further review of the measures to minimise the risk of misuse was conducted by MHRA in 2013, the results of which raised no new concerns. Where appropriate the results from the 2013 review are included in this report. There was no review in 2014.

Stakeholders including the pharmacy profession, the [General Pharmaceutical Council](#) (GPhC)<sup>a</sup>, the [Home Office](#), the [National Police Chiefs' Council](#) (NPCC, formerly the Association of Chief Police Officers, ACPO) and the [National Crime Agency](#) (formerly the Serious Organised Crime Agency, SOCA) have continued to take measures to minimise the misuse of medicines containing pseudoephedrine and ephedrine. They report that these measures are continuing to be successful, and, for our 2015 review, have recently provided updated information on the impact of these measures, such as:

- The [RPS](#), the [Pharmaceutical Society of Northern Ireland](#) (PSNI), the [National Pharmacy Association](#) (NPA), the [Company Chemists Association](#) (CCA) and the [Proprietary Association of Great Britain](#) (PAGB) continue to raise and maintain awareness in the pharmacy profession of the indirect abuse potential of medicines containing pseudoephedrine or ephedrine.
- In a survey conducted in March 2015 of 410 NPA members, 99% were aware of the rules regarding sales of pseudoephedrine. This level of awareness is marginally improved from previous years (97%).
- Sales figures provided by the PAGB show that wholesale purchases of medicines containing pseudoephedrine by pharmacies were slightly higher (up 4%) from January 2014 to January 2015. This is considered to be a reflection of the higher incidence of colds and flu during that period.

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<sup>a</sup> The regulatory body for pharmacists, pharmacy technicians and pharmacy premises in the UK

Pharmacy organisations and NPCC have reported cases of suspicious behaviour which have been addressed by following the agreed procedures. There is no evidence that these incidents are widespread.

The number of registered methylamphetamine addicts in the UK remains small. The NPCC's assessment, based on findings to date, is that there is little to suggest that use of pseudoephedrine or ephedrine medicines in illicit 'meth' manufacture is presenting as an issue. The NPCC assessment showed that precursor chemicals for illicit 'meth' manufacture are most often obtained from sources other than OTC medicines.

## **Conclusions**

In light of the above feedback from stakeholders it may be concluded that the regulatory measures implemented from 2008 to manage the risk of misuse of OTC medicines containing pseudoephedrine or ephedrine are continuing to be effective.

The success of these measures depends on the vigilance of the pharmacy profession in noting and reporting relevant incidents. Pharmacists continue to make a substantial contribution to managing the risk of misuse of these medicines.

## 1. INTRODUCTION

*(See glossary for explanation of terms used in this report)*

The Medicines and Healthcare products Regulatory Agency (MHRA) is the government agency responsible for regulating medicines and medical devices in the UK. We continually review the safety of all medicines in the UK and inform healthcare professionals and the public of the latest updates.

The following report summarises the latest review of the impact of measures introduced to control potential misuse of medicines that contain pseudoephedrine (PSE) or ephedrine (EPH), in the manufacture of the Class A controlled drug methylamphetamine.

## 2. BACKGROUND

PSE and EPH are nasal decongestants contained in many cough and cold medicines sold over-the-counter (OTC) in UK pharmacies. There had been increasing concern that PSE and EPH can be extracted relatively easily from OTC medicines and used in the illicit manufacture of methylamphetamine (colloquially known as 'methamphetamine', 'crystal meth' or 'ice'). Methylamphetamine was classified on 18 January 2007 by the [Home Office](#) as a [Class A controlled drug](#), based on the recommendation of the [Advisory Council on the Misuse of Drugs](#)<sup>a</sup> (ACMD).

Because of this concern, a [public consultation](#) was carried out in March 2007 on minimising the risk of misuse of medicines containing PSE or EPH in the manufacture of methylamphetamine. In this consultation, the MHRA sought views on restricting the availability of these medicines by changing their legal status from pharmacy (P) to prescription-only medicines (POM), together with a restriction in their pack size.

In July 2007, the [Commission on Human Medicines](#) (CHM; an independent body who give advice to UK government Ministers about the safety, quality, and efficacy of medicines) considered the responses to the consultation. They advised that the legal status of medicines containing PSE and EPH should be reclassified from P to POM in July 2009, unless the risk of misuse of these OTC medicines in the illicit manufacture of methylamphetamine was contained. The CHM provided advice on pack size restrictions and other measures to control supply of OTC medicines containing PSE and EPH, and advised that a Working Group should be set up to advise on implementation of the measures (see [press release and weblinked minutes](#)).

Accordingly, the CHM Working Group on PSE and EPH (Working Group) was established in September 2007 to advise the CHM on the implementation of measures that should be put in place to minimise the misuse of OTC medicines containing PSE or EPH in the illicit manufacture of methylamphetamine.

Following CHM advice to restrict pack sizes of PSE and EPH, a further [public consultation in October 2007](#) considered specific amendments to the Prescription Only Medicines Order 1997 (POM Order) to make the sale and supply of medicines containing more than 720 mg of PSE or 180 mg EPH prescription-only. This [legislation](#) came into force in the UK on 1<sup>st</sup> April 2008, after which it became illegal to sell or supply:

- any medicine that contains more than 720 mg PSE or 180 mg EPH without a prescription.

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<sup>a</sup> An independent expert body that advises the government on drug-related issues in the UK

- a combination of medicines that between them add up to more than 720 mg PSE or 180 mg EPH without a prescription
- a medicine that contains PSE and a medicine that contains EPH in one transaction

Professional guidance was also issued by the [Royal Pharmaceutical Society](#) (RPS), formerly known as the Royal Pharmaceutical Society of Great Britain (RPSGB), for PSE or EPH-containing medicines to be supplied personally by a pharmacist or a trained staff member under the supervision of a pharmacist (see section 3.1 below).

In July 2009, July 2010, 2011, and again in July 2012, the CHM considered the impact of measures which had been put in place to minimise the risk of misuse of PSE and EPH-containing medicines and recommended that:

- the existing levels of monitoring, education and awareness measures by pharmacists should be maintained;
- liaison with stakeholders including the Home Office (HO), the National Police Chiefs' Council (NPCC, formerly the Association of Chief Police Officers, ACPO) and the National Crime Agency (NCA, formerly the Serious Organised Crime Agency, SOCA) should continue;
- the Working Group should be reconstituted as necessary,
- MHRA should continue to monitor the situation and report only significant adverse changes to CHM.

Four public assessment reports published in July 2009, July 2010, September 2011 and October 2012 giving full details of the evidence and the CHM's conclusions are available:

- [Controlling the risk of misuse of medicines containing pseudoephedrine and ephedrine](#)
- [Pseudoephedrine and ephedrine: managing the risk of misuse of medicines – July 2010 update](#)
- [Pseudoephedrine- and ephedrine-containing medicines: 2011 review of actions to manage the risk of misuse](#)
- [Pseudoephedrine- and ephedrine-containing medicines: 2012 review of actions to manage the risk of misuse.](#)

Articles on this issue were also published in the [September 2009](#), [September 2010](#), [September 2011](#) and [October 2012](#) editions of Drug Safety Update, the MHRA monthly bulletin for health professionals on the safety of medicines.

In 2012 CHM recommended that MHRA should continue to monitor the situation and report only significant adverse changes to CHM. A further review of the measures to minimise the risk of misuse was conducted by MHRA in 2013, the results of which raised no new concerns. Where appropriate the results from the 2013 review are included in this report.

### **3. UPDATE ON IMPLEMENTATION OF MEASURES**

In light of the CHM's recommendations above, stakeholders have continued to take measures to help minimise the misuse of OTC medicines containing PSE or EPH in the illicit manufacture of methylamphetamine. Information provided recently is summarised below.

### 3.1 Pharmacy supervision plus education and awareness initiatives

Close links have been maintained with the [RPS](#), the [Pharmaceutical Society of Northern Ireland](#) (PSNI) the [National Pharmacy Association](#) (NPA) the [Company Chemists Association](#) (CCA) & Association of Independent Multiple pharmacies (AIMp), and the [Proprietary Association of Great Britain](#) (PAGB). These organisations have provided updated information to the MHRA on the continuing measures to maintain awareness by the pharmacy profession of the indirect abuse potential of medicines containing PSE or EPH.

The RPS continues to regularly raise awareness within pharmacy about the risks of OTC PSE and EPH through community pharmacy and encouraging pharmacy teams to raise concerns. They do this through a variety of media including:

- the 'Medicines, Ethics and Practice' (MEP) annual RPS publication which contains a section of advice on the legal requirements for supply of PSE, signs of possible misuse and advice on how to report suspicious behavior. MEP is distributed to all members and regularly downloaded. MEP 39 was published in July 2015.
- Through the "Look, listen and report your suspicions" quick reference guide for pharmacy teams which is available on the RPS website
- through email and web-alerts – last issued as a professional bulletin in September 2014, the autumn edition.

The PSNI has placed guidance on its website relating to PSE sales. However, a monitoring exercise revealed that in 2013 the information was little accessed by either pharmacists or the public. In 2015 the PSNI plan to review their published standards for the 'sale and supply of medicines' by pharmacies and will specifically address PSE in relation to medicines liable to abuse or misuse.

The PSNI liaises with the Northern Ireland [Department of Health, Social Services and Public Safety](#) (DHSSPS) to monitor wholesalers and retail premises in NI for sales of products subject to abuse, including PSE. The pharmaceutical inspectorate reports no indications of abuse of PSE containing medicines in Northern Ireland at this time.

The NPA continues to have guidance and a template standard operating procedure for the supply of PSE available to members. In March 2015, a telephone survey was conducted of 410 member pharmacies (breakdown of staff: 332 pharmacists, 38 technicians, 2 counter assistants and 38 other roles [pre-registration, pharmacy managers etc.]). 405 (99%) were aware of the restrictions that apply to PSE. The five that were not will receive updated training materials.

The CCA & AIMp continue to operate the [MethGuard UK awareness training programme](#). The vast majority of members have however developed their own in-house resource, including several major high-street pharmacy stores. Companies report that awareness training on the rules regarding sales of medicines containing PSE or EPH is part of the standard training for all relevant staff (e.g., medicines counter assistants) and new staff. Some companies provide refresher training prior to the autumn/winter cough and cold season, and audit compliance through different schemes (e.g., a mystery shopper scheme).

### 3.2 Pharmacy reporting of suspicions

The '[Look, Listen and Report your suspicions](#)' guide is available to members on the RPS website.

Overall, for 2013 and 2015 pharmacies report that there was no noticeable increase in demand for PSE-containing medicines year-on-year.

The GPhC reports three cases in 2015: the theft of EPH tablets, the internet sale of EPH medicines without appropriate patient safety checks and a report concerning repetitive requests of Sudafed tablets from groups of individuals. Sales were refused due to concerns that they were not for the individuals concerned. The appropriate authorities were informed.

Two separate incidents of unusual requests were reported by an independent pharmacy chain and the local authority circulated an NHS alert to all pharmacies in the area.

The general experience of the GPhC inspectors is that pharmacists are aware and alert to the potential abuse of medicines containing PSE/EPH. Most inspectors discuss this staff during their routine inspections to check understanding of the issues amongst the pharmacy team. Overall understanding and awareness appears to be good.

### **3.3 Sales monitoring for evidence of use of over-the-counter medicines in the manufacture of methylamphetamine**

The PAGB provided wholesale figures for medicines containing PSE or EPH. There was a higher incidence of cold and flu in the (2014/2015) season than in the 2013/2014 season and this has resulted in a slight increase in the volume of sales. The figures demonstrate a slight increase in PSE sales of 4% during the year January 2014 to 2015. This compared with a 5% reduction the previous year January 2013 to 2014. The figures now appear to reflect the incidence of cold and flu in any one year. The manufacturers of brand leader medicines have reported increases of 1.3 - 9% in sales of PSE-containing medicines for 2014/15 compared to 2013/14. Similarly, there has been an increase of 11.4% in sales of phenylephrine (PE) medicines for the same period. It is noticeable that the strong and sustained levels of cold and flu for 2014/15 have led to increased sales.

### **3.4 Triggers for a review of the availability of pseudoephedrine or ephedrine over-the-counter medicines**

The CHM has previously agreed a number of factors which act as potential triggers for a review of the pharmacy/OTC availability of PSE or EPH-containing medicines. The NPCC, NCA and the Home Office have provided updated information in these areas which is summarised below:

The NPCC reports that meth production within the UK remains small. The importation of methylamphetamine has been detected, and as with the suspicious activity it has been acted upon. It is not believed that diversion occurs from medicines in the UK.

Following an NHS alert, a local Police Force reports that they successfully took action in relation to the individual concerned.

The National Crime Agency (NCA, formerly the Serious Organised Crime Agency, SOCA) occasionally receives suspicion reports from pharmacies regarding medicines containing PSE/EPH. No reports have been received for the last two years. NCA are not aware of any reports of meth labs in the last 12 - 18 months.

Data from the Crime Survey of England and Wales indicates that the numbers of adults using methylamphetamine have remained constant since records began in 2008/9. The numbers of new methylamphetamine addicts registered for treatment in 2013/14 was 240, a low number compared to other drugs<sup>a</sup>.

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<sup>a</sup> Data from the [National Treatment Agency's Adult Drug Statistics from the National Drug Treatment Monitoring System](#) 1 April 2013 to 31 March 2014

Apart from the one case, there have been no other reports of concern from NPCC or NCA regarding misuse of medicines containing PSE or EPH and the numbers of individuals reporting use of methylamphetamine remains low. AIMp sources and GPhC have each reported cases of suspicious behaviour which have been addressed by following the agreed procedures. Due to the various routes by which reports are received and circulated, some of the reports may be duplicates. There is no evidence that these incidents are widespread.

Liaison with relevant stakeholders including NPCC, NCA, and the GPhC Pharmacy inspectorate will continue to provide suitable information as it arises. Overall NCA and NPCC are aware of the potential dangers of misuse across the UK but at present the low level of response appears to confirm that use of PSE or EPH containing medicines in illicit 'meth' manufacture is not presenting as an issue, with the precursor chemicals sourced from elsewhere than from OTC medicines. They consider that the current restrictions continue to be sufficient to address the issue of 'meth' abuse in the UK arising from misuse of OTC PSE/EPH containing medicines. There is no evidence of any trend which would warrant further risk minimisation measures at present.

## **4. INTERNATIONAL POSITION**

Below is an update of available information on measures implemented in other countries to minimise the risk of misuse of OTC PSE or EPH-containing medicines.

### **USA**

There has been no change in the status of PSE at the federal level in the USA. It is sold OTC with restrictions on direct customer access, sales limits, storage and record keeping requirements. States may have more stringent restrictions than those at the federal level.

### **Czech Republic**

The Czech Republic had taken steps to control the sale of medicines containing EPH or PSE available without a prescription. The situation with PSE appears unchanged with the restrictions set by the [State Institute for Drug Control](#) in 2009 being applied to all medicines containing PSE (up to 30 mg per dosage form unit; the medicines with higher content have prescription-only status). The number of packages sold in the pharmacies per year has gradually decreased since 2009. There are some reports of illegal manufacture of methylamphetamine using precursor materials imported to the Czech Republic from other countries (EU and non-EU).

### **Australia and New Zealand**

A review of information available on the official websites of these countries indicates there are no new issues of concern in relation to misuse of OTC PSE/EPH medicines.

## **5. DISCUSSION**

The feedback from stakeholders is that the regulatory measures recommended by the CHM to help manage the risk of misuse of OTC medicines containing PSE or EPH are continuing to be implemented effectively.

The pharmacy representative organisations are maintaining their support and encouragement of education and training by pharmacists and pharmacy staff, to ensure awareness of misuse of PSE and EPH and the links to methylamphetamine misuse.

There has been a slight increase in sales of some PSE containing medicines but this is not considered significant as the higher usage reflects the higher incidence of cold and flu reported for a significant period during late 2014 and early 2015.

There have been a few reports of minor incidents associated with suspicious behaviour associated with individuals or groups seeking to obtain OTC medicines. Due to the reporting methods, there may be a duplication of reports. The incidents have been addressed at a local level according to the established procedures and there is no evidence of illicit manufacture associated with the reports. The majority of reports have arisen from pharmacy sources indicating that pharmacists are continuing to monitor sales diligently. There is no reason to consider that these cases are indicative of a trend which would suggest that additional measures need to be considered to control supply of PSE/EPH containing medicines.

There are no reports of sufficient concern to trigger a review of continued OTC PSE/EPH availability at this time. The NCA has reported that no new meth labs have been found within the last 12 to 18 months. Other countries are also taking steps to better manage the risk of misuse of medicines containing PSE or EPH.

The benefit-risk balance continues to be in favour of maintaining the present Pharmacy availability for these medicines which provide relief from nasal congestion for many thousands of patients.

## **6. RECOMMENDATIONS AND CONCLUSIONS**

The measures implemented from 2007 are continuing to successfully control the supply of OTC medicines that contain PSE or EPH. The reclassification of these medicines to prescription only control is not considered necessary at this time.

The success of these measures depends very much on the vigilance of the pharmacy profession in noting and reporting relevant incidents and pharmacists continue to make a substantial contribution to managing the risk of misuse of these products.

In 2012 CHM recommended that MHRA should continue to monitor the situation and report only significant adverse changes to CHM. MHRA will continue to maintain the present level of monitoring to establish that the education and awareness measures by pharmacists are maintained and to liaise with stakeholders including the Home Office, NPCC and NCA.

## 7. GLOSSARY

### **Class A controlled drugs**

In the UK, certain drugs are designated as controlled substances (i.e., only certain designated persons may manufacture, supply and possess them) and are divided into three classes: A, B and C. Those categorised as Class A are considered to be the most likely to cause harm (see

<http://webarchive.nationalarchives.gov.uk/20100419081707/http://drugs.homeoffice.gov.uk/drugs-laws/misuse-of-drugs-act/> for more information)

### **Clinical Audit**

A process performed by the UK's National Health Service that seeks to improve patient care and outcomes by reviewing performance in the Service

### **Decongestant**

A drug that helps to clear a blocked nose

### **Ephedrine**

A drug that narrows blood vessels and widens airways, used mainly as a nasal *decongestant*

### **Illicit**

Illegal

### **Legislation**

A proposed law or group of laws

### **Methylamphetamine**

A Class A controlled drug that is illegal to possess, supply or manufacture. It is a **stimulant** that causes feelings of exhilaration

### **Misuse (of medicines)**

Using a drug for improper purposes (i.e., not for treating a condition or disease)

### **Over-the-counter**

Medicines that can be sold to a customer without a prescription

### **Pharmacy (referring to medicine classification)**

Medicines that can only be sold to a customer by a trained pharmacist

### **Phenylephrine**

A drug that narrows blood vessels, used mainly as a nasal *decongestant*

### **Precursor (chemical)**

A chemical that is required in the process of making a drug, which becomes part of the end-product

### **Prescription Only Medicine**

Medicines that can only be sold to a customer if they have a valid prescription from a doctor

### **Pseudoephedrine**

A drug that narrows blood vessels, used as a nasal *decongestant*

### **Public Consultation**

A process that seeks the public's input on matters that affect them

**Stakeholders**

A person, group, organisation or system which affects, or can be affected by, an organisation's actions

**Stimulant**

A substance that causes increased activity in the body, particularly in the nervous system, and the heart and circulatory system