SafeScript: Victoria's real-time prescription monitoring system

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Background
A substantial increase in prescribing and dispensing of high-risk psychoactive medicines, including opioid analgesics and benzodiazepines, has resulted in an increase in serious harm from use and misuse, including non-fatal and fatal overdose.

Objective
The aim of this paper is to describe the need for real-time information about patients' receipt of high-risk psychoactive medicines and the development of SafeScript, Victoria's real-time prescription monitoring system.

Discussion
SafeScript uses existing prescription exchange services to collect prescribing and dispensing data about psychoactive medicines subject to misuse or high-risk use. The introduction of SafeScript was accompanied by extensive support measures to encourage and support an effective professional response for patients recognised to be at risk of harm from their use of these medicines. Use is mandatory, and SafeScript is integrated into the professional's workflow. Alerts about several high-risk situations (high opioid daily dose, high-risk medicine combinations, supply by multiple providers) are automatically generated and provided to the professional user at the time of their SafeScript use.

THERE WAS A 15-FOLD increase in the Australian supply of prescription opioids from 1992 to 2012,[1] with several new, potent opioids and formulations marketed.[2] In 2019–20, approximately 15.2 million opioid analgesic prescriptions were dispensed to 3.1 million patients[3] and approximately 5.5 million benzodiazepine prescriptions were dispensed to 1.5 million patients.[4] Increased opioid supply is correlated with increased harm.[5,6]

Those using opioid analgesics for chronic pain may become addicted. With more Australians exposed, misuse has become widespread: in 2016 more than 700,000 Australians used opioid analgesics non-medically.[7] Evidence from several other sources describe increasing harm.[8] The number of Victorian overdose deaths in 2021 involving pharmaceutical drugs (n=376) exceeded the number involving illegal drugs (n=260) or lives lost on the road (n=232).[9] The leading medicines contributing to these deaths in 2020 were benzodiazepines (53.4%) and opioid analgesics (35.9%).[10]

In recent years there have been numerous initiatives to mitigate harm from opioids and benzodiazepines, including new guidelines for treatment, tamper-resistant formulations, the introduction of smaller pack quantities, rescheduling of over-the-counter codeine medicines to prescription only,[11] providing the opioid antidote naloxone to people at risk of, or likely to witness, an opioid overdose and an opioid stewardship program.[12]

Developments to improve access for providers to information about patient supply of medicines

The Australian Royal Commission of Inquiry into Drugs (1980) recommended establishment of state Drugs of Dependence units to receive copies of all Schedule 8 prescriptions from pharmacies, and many states and territories developed central databases to collate records of opioid prescriptions, with some moving from paper-based to electronic communication.[13]

More recently, misuse of high-risk Pharmaceutical Benefits Scheme (PBS) medicines led to the establishment of the Prescription Shopping

Program, which provides information about PBS-subsidised medicines and requires a prescriber to register.

Several entities have recommended establishing monitoring programs to deliver providers with real-time information about an individual patient's record of supply of high-risk medicines,[14–16] as have coroners in findings about overdose deaths in several states.[17]

In 2016, the Victorian Government funded the development of real-time prescription monitoring (RTPM) to provide information identifying the patient, prescriber and pharmacist, the medicines and the quantity prescribed in real time.

Many psychoactive medicines are subject to harmful misuse and are listed as controlled drugs (Schedule 8), and others are prescription medicines (Schedule 4). A commissioned study established the list of medicines to be subject to monitoring,[18] including all opioids, prescription stimulants, benzodiazepines and Z-drugs and the antipsychotic quetiapine.

High-risk activities addressed

There are several high-risk circumstances in the supply of these medicines to which prescribers and pharmacists need to be alerted at the time of supply.

The provision of high-risk psychoactive medicines by multiple providers (prescribers and/or pharmacies) increases the risk of uncoordinated care, creating a risk of misuse, diversion and overdose.[19–23]

A systematic review and meta-analysis of numerous studies of dose-related risk of unintentional opioid overdose concluded that the threshold dose for an unintentional overdose is 20 mg morphine equivalents (MME)/day, with higher risks with larger doses.[24]

A Canadian study found that one in every 32 (3.1%) patients who escalated to doses of more than 200 MME/day were nearly 24-fold more likely to die from an opioid-related cause than those who did not.[25]

Risky combinations are also a problem. Opioids and benzodiazepines are both respiratory depressants, and both are commonly involved in overdose deaths, so the concurrent use of opioid analgesics with benzodiazepines is associated with an increased risk of opioid overdose deaths.[26–29]

In the US, expert panels have defined prescription drug monitoring program (PDMP) best practice characteristics, including mandating registration and use prior to supply, timely input of data about supply, integration of PDMP data with electronic health records and pharmacy dispensing systems, interstate data sharing, including monitoring psychoactive medicines other than opioids and stimulants, and providing unsolicited reporting of questionable circumstances of supply,[30–32] resulting in fewer overdose deaths involving monitored opioids.[33]

SafeScript development

The team developing SafeScript (www.safescript.vic.gov.au) decided to use the existing prescription exchange services to transmit prescription and dispensing data in real time, to be held in a database to provide information during interaction with the patient. This avoided the need to develop separate integration with the more than 20 different dispensing and prescribing clinical systems to collect the necessary data, and significantly reduced the system development time.

SafeScript features include those recommended by expert panels described above and designed to enhance its effectiveness: facilitated registration to use; mandatory registration of prescribers and pharmacists; mandatory use prior to prescribing/dispensing a monitored medicine; medicines monitored include Schedule 8 medicines, but also others identified as subject to misuse and harm; evidence-based decision about which medicines to monitor; proactive warning about three categories of potentially high-risk circumstances; integration into the professionals' workflow; access in real time; the provision of contact details of other providers; and developing a national data exchange to enable access to patient information across other states and territories.

Implementation of SafeScript provided numerous initiatives and services to support an effective response to findings about patients, including a public awareness campaign, online and face-to-face training, enhancement of support for patients and clinicians responding to problems with benzodiazepines, a general practitioner (GP) clinical advisory service with two trained GPs distributed in each of the six Primary Health Networks, a series of podcasts involving GPs, pain and addiction specialists,[34] an article in *Australian Prescriber*,[35] enhancement of the Drug and Alcohol Clinical Advisory Service (DACAS), a telephone helpline for the public staffed by trained nurses, and information material for consumers and professionals.

Concerns about unintended consequences

There has been an increase in the use of the stigmatising term 'doctor shopping' to describe drug seeking for psychoactive medicines such as opioid analgesics and benzodiazepines. This term prejudges the reason for attending multiple providers and triggers a policing response and discharge from care[36] instead of providing professional assessment and support.[37,38]

Other concerns include that patients prevented from accessing medicines to which they are dependent would be forced onto the illicit drug market to use illicit drugs, and that drug-seeking individuals would move across state/territory borders to obtain medicines.

Does SafeScript reduce the risk of serious adverse events?

As of December 2022, analysis of SafeScript data by the Department of Health's SafeScript team found that 28,252 (73%) Australian Health Practitioner Regulation Agency (Ahpra)-registered medical practitioners and 9062 (93%) Ahpra-registered pharmacists were registered to use SafeScript. Registration is high in many of the specialities where SafeScript patient information may be important: addiction medicine (100%), pain medicine (96%), general practice (95%), emergency medicine (87%) and psychiatry (87%).

A study of Victorian general practice prescribing found a significant reduction in the number of patients per 1000 patients prescribed an opioid, and a small but significant reduction in the prescribing of higher-risk opioid doses in the first month following introduction of the mandatory use

of SafeScript in April 2020, but this was not sustained in the further seven months.[39]

Another study examined changes in the receipt of high-dose opioids (>100 oral morphine equivalent (OME)/day) following the introduction of the mandatory use of SafeScript in April 2020 and found that although two-thirds of patients (67.7%) continued to receive these doses, 23.9% received reduced OME prescriptions and 8.5% did not receive a prescribed opioid following mandatory PDMP use.[40]

A study of variation in dispensing of PBS opioid prescriptions across Australia from 2016–17 to 2020–21 found that rates fell in all states and territories,[41] with the largest decrease in Victoria (23%). The largest Victorian decrease occurred in the 2019–20 financial year following the initial introduction of SafeScript in April 2019, with a reduction from 55,315 dispensings per 100,000 population to 50,662 (an 8.1% reduction), and in the 2020–21 financial year following the introduction of the mandatory use of SafeScript in April 2020, with a reduction from 50,662 to 45,739 per 100,000 population (a 9.7% reduction).[41]

The Coroners Court of Victoria identifies that there has been a decreasing number of overdose deaths involving benzodiazepines, pharmaceutical opioids and quetiapine since the introduction of SafeScript in April 2019,[42] without an increase in the number of overdose deaths involving heroin to the end of 2021.

A recent report on overdose deaths in Victoria (2013–22) describes that there has been a substantial increase in the number of heroin-related overdose deaths, from 173 in 2021 to 230 in 2022 (Table 1).[10] This increase might reflect changes in heroin purity,[43] availability and price in the illicit drug market,[44] rather than an unintended adverse effect of SafeScript, as there was little change in the first 33 months of SafeScript availability to the end of 2021 after it was launched on 1 April 2019.

There is description of a decrease from $100 in 2021, to $50 in 2022 in the cost of a point of heroin (0.10 grams) in 2022, reported by a Victorian sample of people who inject drugs.[45]

The COVID-19 pandemic may have provided a confounding effect on many healthcare measures, including contributing to overdose death trends during the years from 2018 to 2021.

Many practitioners find SafeScript extremely useful in obtaining a more complete assessment of their patients' use of monitored medicines, particularly where patients had been accessing them from multiple providers. Descriptions from prescribers to the SafeScript team include reports that patients suspected of misusing monitored medicines had not been, and that other trusted patients had been obtaining them from other practitioners. Others found that SafeScript information encouraged them to review prescribing for individual patients and plan for safer supply.

One concern about an unintended consequence of SafeScript's introduction was that many of those currently misusing monitored medicines, including opioid analgesics, would be forced to transition to heroin. This concern is not supported by trends in Victorian heroin overdose deaths in the first 33 months of SafeScript operation: The number of overdose deaths involving heroin decreased from 212 in 2019, the first year of SafeScript's introduction in April, to 173 in 2021, an 18.4% reduction.

As more Australian states and territories introduce RTPM, prescribers and pharmacists can feel confident that they can be better informed and understand their patients' use of high-risk medicines and identify and more closely manage misuse and dependence.

General queries about SafeScript can be emailed to safescript@health.vic.gov.au.

Table 1. Change in number of overdose deaths involving selected individual drugs or categories of drugs: Victoria, 2018–22

	2018	2019	2020	2021	2022
Monitored medicines					
Benzodiazepines	304	285	285	266	267
Pharmaceutical opioids	207	207	192	182	183
Quetiapine	53	50	53	44	43
Zopiclone	13	22	18	15	17
Zolpidem	6	8	8	9	9
Medicines not monitored					
Antidepressants	196	170	181	159	174
Antipsychotics (excluding quetiapine)	56	53	60	55	67
Pregabalin	69	66	69	65	66
Illegal drugs					
Illegal drugs (all, including heroin)	260	274	276	260	301
Heroin	203	212	187	173	230

Key points

- There has been a substantial increase in the number of Australians treated with potentially addictive psychoactive medicines.
- This is associated with increasing numbers of individuals experiencing serious harm, including non-fatal and fatal overdose.
- Existing measures to coordinate treatment fail to control the problem.
- SafeScript, the Victorian real-time prescription monitoring program, provides access at the time of consultation to information about prescribing and the supply of high-risk psychoactive medicines

to patients to enable more informed decisions about safe prescribing or dispensing.
- Health practitioners have embraced use of SafeScript and report its utility in more safely managing the supply of these medicines.

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