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Deaths from medicines: a systematic analysis of Coroners' reports to prevent future deaths

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Key points:

Coroner's reports are a potentially rich source of data on fatal medication errors and adverse drug reactions

Opiate and anticoagulation medication account for nearly half of fatal medication errors mentioned in coroners' reports to prevent future deaths

Health organisations, professional and regulatory bodies, and market authorisation holders could derive wider pharmacovigilance benefits from greater awareness of coroners' reports

Abstract

Introduction: Since legislation in 2009, coroners in England and Wales must make reports in cases where they believe it is possible to prevent future deaths. We categorized the reports and examined whether they could reveal preventable medication errors or novel adverse drug reactions.

Methods: We examined 500 coroners' reports by pre-defined criteria to identify those in which medicines played a part, and to collect information on coroners' concerns.

Results: We identified 99 reports (100 deaths) in which medicines or a part of the medication process or both were mentioned. Reports mentioned anticoagulants (25 deaths), opioids (24), antidepressants (18), drugs of abuse excluding opioids (13 deaths), and other drugs. The most important concerns related to adverse reactions to prescribed medicines (22), omission of necessary treatment (21), failure to monitor treatment (17), and poor systems (17). These were related to defects in education or training, lack of clear guidelines or protocols, and failure to implement existing guidelines, among other reasons. Most reports went either to NHS Hospital Trusts or to local trusts. The responses of addressees were rarely published. We identified four safety warnings from the Medicines and Healthcare products Regulatory Agency that were based on coroners' warnings.

Conclusion: Coroners' reports to prevent future deaths provide some information on medication errors and adverse reactions. They rarely identify new hazards. At present they are often addressed to local bodies, but this could mean that wider lessons are lost.

1. Introduction

In England and Wales, the cause of deaths other than natural deaths is established at inquest, conducted by a coroner. Since 2009 coroners have had a duty to make reports to a person, organisation, local authority or government department or agency where the coroner believes that action should be taken to prevent future deaths. [1]

These 'Reports to Prevent Future Deaths' (known as PFDs) are published on the website of the Courts & Tribunals Judiciary. [2] The legal powers underpinning the PFD are set out in paragraph 7, schedule 5 of the Coroners and Justice Act 2009 and regulations 28 and 29 of the Coroners (Investigations) Regulations 2013.

We wished to examine PFDs to establish how often medicines and other drugs (excluding alcohol) were referred to in reports, and the nature of recommendations, and the extent to which they revealed preventable medication errors or novel adverse drug reactions.

2. Methods

We decided whether reports should be included in our study using the algorithm shown in Figure 1.

{Figure 1 near here}

If the PFD mentioned part of the medication process (for example, administration), or if a medicine was mentioned, or both; and either caused or contributed to death, then we included the report. We included drugs of abuse such as diamorphine (heroin) and cocaine. We excluded those cases in which a medicine or part of the medication process was mentioned, but did not cause or contribute to death; and in which delays in assessment, investigation, or

diagnosis led to delays in treatment. We also excluded cases where the only drug mentioned was alcohol.

The 500 reports from 24th April 2015 to 7th September 2016 were downloaded from the Courts and Tribunals Judiciary website. Two of us (CE and REF) each categorized all the PFDs. Where there was uncertainty, the categorization was resolved by discussion; disagreements were resolved by adjudication (by ARC).

The data from each of the included PFDs were extracted in standard form. After the case reports were categorised into the four separate groups, as described above, the following information was recorded in a Microsoft Excel® spreadsheet for all cases:

- Patient Name, age or date of birth and date of death
- Jurisdiction in which death occurred
- Catalogue number

In the case of a medication error, the following information was also recorded:

- Gender and medical and social history of the patient
- The medical cause of death/conclusion of the coroners' inquest
- Nature of the medication error
- Circumstances surrounding the medication error and how, if applicable, did the error occur
- Coroner recommendation
- Coroners recommendation classification
- Whether the report had been classified under the alcohol, drug and medication classification on the Judiciary website
- Medication error classification

- The drug class of the medication involved
- Setting of patient death e.g. hospital/ community/care home/ state

We used the information within the PFDs to categorize the role that a drug had played in causing or contributing to a person's death, and by implication those matters that required attention. We also considered whether the report described a previously recognized hazard, and whether it was of general relevance.

PFDs are directed to specific individuals or organisations, and we also examined whom they were addressed to.

We used only information in the public domain, and did not seek ethics committee approval.

3. Results

We identified 99/500 PFDs which fulfilled the criteria, and which related to 100 people. Details are given in the Supplementary Table.

{Supplementary Table}.

Forty two of the 100 people we identified were women; 54 deaths were recorded in 2015 and 46 in 2016. The age was stated in 2/3 of reports, among whom the mean age was 52 years and median age 50 years [range 1 day to 96 years]. The drug classes implicated are shown in Table 1.

{Table 1 near here}

Most frequently mentioned drug classes, used alone or in combination, were anticoagulants (in 22 cases) and opioids, whether or not prescribed (in 17 cases). Other drugs of abuse included ecstasy (3 deaths), cannabis or cannabinoids (4 deaths), and cocaine (2 deaths).

The concerns expressed by coroners are categorized in Table 2, which also lists the number of cases in which an adverse drug reaction (ADR) to a prescribed medicine was recorded.

{Table 2 near here}

We also categorized the Coroners' concerns according to a pre-determined list of terms. In 58 instances, coroners were concerned about the absence of protocols or guidelines; or the need to update them; or the failure to enforce them. Concerns centred on education and training in 33 reports; and on difficulties in communication in 21 reports. Coroners were also concerned about standards of review or monitoring (24 reports), drug regulation (12 reports), and issues related to staff or equipment (13 reports). We concluded that reports mostly (76) concerned local failure or bad practice, and generally (52) served as a reminder of known risks. Many (57) would be of wide relevance to patients and healthcare professionals who wished to mitigate risks in the health service. One report concerned a possible new risk in the manufacture of slow-release fentanyl patches, and 12 suggested failures in drug regulation, although the failures (principally in the control of novel psychoactive substances) had previously been recognized. The implications of two of the reports were uncertain.

At least 15% of the reports involved patients in care homes, and reflect a change in the regulations for enquiries into cases where people have been deprived of their liberty. Almost a third of all reports concerned drugs of abuse. Of these, several occurred in prison, and in

total nearly 10% of the reports related to deaths in police custody or prison, a further issue of current concern.

Table 3 lists the agencies or persons to whom reports were addressed, and who had a duty to respond to the coroner's report within 56 days of the date on which it was issued.

{Table 3 near here}

While there is the opportunity for responses to be posted on the internet, this was rarely done. Some responses were clear. For example, MHRA published warnings about fentanyl patches [Cases 2015-0463 and 2016-0014], emollients [Cases 2015-0317 and 2016-0163], the interaction between cocaine and citalopram [Case 2015-0231], and cardiac effects of hyoscine butylbromide [Case 2016-0308], although reports were only specifically addressed to MHRA in the last two cases.

3.1 Examples of Coroners' concerns

a) An adverse drug reaction that was missed – perforation of a gastric ulcer [Case 2016-0222]

A 16-year-old girl with cerebral palsy and other difficulties was treated with medicines including diclofenac. She appeared to be in pain with abdominal distension. The general practitioner saw her and arranged admission, but the junior doctor who clerked the patient did not see the admission letter, and diagnosed constipation. As the patient's pulse rate was increased, an electrocardiogram was arranged. This showed only sinus tachycardia. The patient was discharged with a laxative. When she represented the next morning, she was

gravely ill, and she died soon afterwards from peritonitis secondary to a perforated gastric ulcer.

The Coroner expressed concern that no cause was sought for the tachycardia; that there were failings in the record-keeping, and that the general practitioners record never reached the he junior doctor; and that the possibility of diclofenac-induced ulceration and perforation was not considered.

b) The danger of high doses of heroin in addicts who have lost tolerance [Case 2016-0058]

A 25-year-old man with a history of depression and substance misuse was referred to a psychiatric team specializing in patients with 'dual diagnoses.' Appointments were delayed. The man managed to reduce his own opiate usage. He then received a benefits payment, took a large dose of heroin, and died.

The Coroner expressed concerns regarding the various agencies involved, and their failure to communicate with each other. The coroner did not explicitly state that addicts should be educated about the dangers of taking large doses after tolerance has lapsed.

c) An under-appreciated danger from paraffin-based emollients [Cases 2015-0317 and 2016-0163].

Two reports described the deaths of incapacitated patients who suffered fatal burns when dressings that had become impregnated with paraffin-containing emollients dropped smoking materials onto themselves. Coroners expressed concerns that the dangers were not widely recognized, and warnings insufficient.

d) Failures of medication control in prisons [Case 2015-0468]

A male prisoner was found collapsed by his cell-mate in the early hours of the morning. Toxicological samples showed the presence of prescribed and non-prescribed drugs, including methadone, buprenorphine, diazepam, pregabalin, quetiapine, and a synthetic cannabinoid. Both prescribed and non-prescribed drugs were found hidden in his cell.
The Coroner expressed concern that prison staff lacked awareness and understanding of drugs; that there was a failure to use a multi-disciplinary approach to the problem; that medicines could easily be concealed; that prisoners are not adequately monitored; that positive drug test results were not shared with prison staff; and that drugs could easily be smuggled or thrown into the prison.

e) Secondary risks of drug therapy – haemorrhage after trauma in a patient taking warfarin

A woman took warfarin for an established heart condition. She went to meet a friend at a supermarket café and took the lift to the mezzanine. In the lift she leant on the rear wall, which was in fact a door that opened without warning. The woman stumbled, fell, and banged her head. She consequently developed a fatal intracerebral haemorrhage.
The Coroner was concerned that the rear door was not marked in any way, and that no warning sounded when the door opened.

A brief description of each of the 100 included deaths (99 reports) is provided in the Supplementary Table.

There were several ‘grey’ cases that we excluded from the analysis. For example, in one report, the coroner stated that an elderly woman had been given too much heparin because the dosage calculated had failed to take into account that she weighed only 30 kg. However, the

report also explicitly stated that this failure did not cause or contribute to death. [Case 2015-0417]. In another example, a young man died from abusing helium, breathed from a plastic bag. Although the coroner stated that helium was toxic, it is only toxic in the sense that—like nitrogen—it cannot support life without the addition of oxygen; and nor is it regarded as a medicine. [Case 2016-0182]. In a third case, a patient died from complications of tracheal stenosis after prolonged intensive care, itself a consequence of severe ketoacidosis from new-onset diabetes. The coroner noted that the patient was treated with clozapine, which can precipitate diabetes, and criticized the failure to monitor blood glucose concentrations during clozapine treatment, but the *Summary of Product Characteristics* for clozapine recommends periodic measurement of fasting blood glucose concentration only in those with risk factors for diabetes. [Case 2015-0194].

4. Discussion

The primary purpose of a Coroner's Inquest is to establish in the case of an unexplained death who has died, when and where they did so, and what led to death. It is inevitable, in conducting enquiries sufficient to provide this information, that Coroners will uncover factors that led to the individual death and which may in future lead to further deaths.

Coroners in England and Wales have, under Rule 43 of the Coroners Rules 1984, been able to make reports with the intention of preventing future deaths. In the updated legislation of 2008 and 2013, Coroners now have a duty to make such reports where they are appropriate, and these reports are available on the internet. Similar provision has been made elsewhere, for example, in New Zealand, [3] Australia, [4,5] and Canada [6]. In the United Kingdom, coroners are not permitted to make recommendations of improvements in PFDs, which do not therefore set out explicitly the ways in which improvements might be made.

In 2015 there were 529 613 deaths in England and wales, and of these 236 406 (45%) were reported to a coroner. [7] Coroners requested post-mortem examinations in nearly 90 000 deaths, and opened 32 857 inquests. Of 35 473 inquests concluded, death was recorded as non-natural on 24 430 occasions (69%) (The number of inquests completed exceeded the number of inquests opened as a consequence of a conscious decision by the Ministry of Justice to clear a historical backlog of cases). Of these deaths, 2% were related to road traffic collision, 6% to drugs or alcohol, 11% to suicide, and 22% to accident or misadventure. During 2015, the website of the Courts and Tribunals Judiciary listed PFDs with serial numbers from 0001 to 0502; [8] occasional reports concerned more than one death. The next year, the serial numbers of PFDs ran from 0001 to 0467.

The Courts and Tribunals Judiciary website categorizes reports. One of the classifications is 'Alcohol, drug and medication deaths.' During the period of our study, only eight reports were categorized as 'Alcohol, drug and medication related deaths' on the website; one of these concerned a man who was hit by a train, having probably wandered onto a railway line while drunk [Case 2016-0234], so that only seven fulfilled our criteria. We do not know the criteria by which the reports are classified on the website, but the vast majority of the reports we identified are omitted. This failure to classify deaths as related to medications may impede the use of coroner reports as an additional source of pharmacovigilance data by regulatory authorities and market authorisation holders.

Coroners expressed concern in 33 reports that failures in education and training had contributed to death, and in a further 27 reports that absent or unsatisfactory protocols had contributed. Difficulties in communication (21 reports) and failure to adhere to pre-existing

protocols (20 reports) also featured prominently among concerns. The failure to observe pre-existing protocols suggests that introducing new protocols will not always protect against future risk.

The coroners' reports dealt with a range of drugs and medicines. The medicines involved were largely predictable, and few of the reported problems were novel. The most commonly represented were anti-coagulants (25 deaths), opioids (22 deaths), and anti-depressants (17 deaths). Drugs of abuse excluding opioids were mentioned in 12 cases. Four of these cases, related to cannabis or synthetic cannabinoids, were among 11 deaths in prison or in police custody. The reports on deaths in custody suggest both that synthetic cannabinoids and other drugs of abuse are readily available in prison, and that there are dangers in the unsupervised medication of prisoners, who are able to hide drugs dispensed to themselves or acquired from others.

Coroners reported failures in the laws governing the misuse of drugs, and the reports have been followed by the introduction of the Psychoactive Substances Act 2016, which controls the production, supply, and sale of substances, intended for human consumption, that are "capable of producing a psychoactive effect". Parliament discussed both the availability of synthetic cannabinoids ('legal highs') in prison, and deaths from legal highs, but it is unclear whether the coroners' reports influenced the legislators. [9].

The influence of coroners' reports was more certain in the case of the Medicines and Healthcare products Agency (MHRA). The Agency's bulletin 'Drug Safety Update' cited the coroners' reports in four articles. One warned of the danger of prescribing citalopram or other selective serotonin reuptake inhibitor to patients who are known to abuse cocaine. [Case

2015-0231;10]. A second stated that hyoscine butylbromide posed a risk of serious adverse effects in patients with heart disease. [Case-2016-0308; 11]. Drug Safety Update explicitly mentioned the coroner's report of the angiotensin-converting-enzyme–spironolactone interaction that led to fatal hyperkalaemia. [Case 2015-0295; 12]. All three coroners' reports had been addressed to MHRA. In addition, the coroner's report was referenced in a Drug Safety Update warning of the dangers of interaction between miconazole gel and warfarin. [Case 2016-0096; 13]. A coroner reported a death by fire caused by a paraffin-containing emollient to the National Patient Safety Agency, which is now the National Reporting and Learning System (NRLS), part of NHS Improvement. [Case 2015-0317]. Drug Safety Update learnt of the incident from NRLS and reiterated earlier warnings of the fire hazard. [14].

One reason why it is difficult to be certain whether other reports have led to action is the relatively rare publication of responses from addressees. The system in England and Wales requires those to whom the report is addressed to respond within 56 days, but the responses are not as a matter of course posted on the internet, and so it is not possible in general to see whether the report has reached the addressee, whether a response had been sent to the Coroner, or whether any effective action has been formulated or taken. By contrast, and preferably, the Coronial Service of New Zealand issues six-monthly summaries of Coronial recommendations and responses to them. For example, a New Zealand Coroner noted that constipation associated with clozapine treatment could lead to fatal bowel complications, and that Medsafe (the New Zealand medicines regulatory authority) had warned of this for more than a decade prior to the death under investigation, and recommended that the local health board take steps to ensure care home staff looking after patients prescribed clozapine should be aware of Clozapine Best Practice Guidelines, and consider further training. [15]. The district health board accepted the recommendations and would 'look at how the organisation

can strengthen responses in all of the areas noted.' Admittedly, while the response indicates receipt of the recommendations, neither the coroner nor the public can know in the absence of further information whether any action was taken on this occasion.

Coroners differ in the number, range, and influence of those to whom they addressed reports. Most of the reports we examined were sent to Local NHS Trusts, NHS Community Commissioning Groups (CCGs), or Hospital Trusts. This limits the opportunities for wider learning from systemic problems that might come from addressing reports to national bodies. For example, a coroner, concerned that a there had been a failure 'to address the risk of developing diabetes' during long-term use of olanzapine, addressed the report to the Trust concerned. [Case 2015-0264]. However, nearly 200, 000 prescriptions for olanzapine are issued every month in English CCGs, and more in mental health trusts, so that the message is of wide general relevance. Many of the reports described failures or adverse effects of general relevance. They should be integrated into national systems, and it would be reassuring if healthcare organizations such as the National Reporting and Learning System received copies of these reports so that they could inform an integrated strategy to mitigate harms in healthcare.

Coroners are limited by the rule that they must express their concerns, but are not permitted to make recommendations as to how the concerns should be met. The careful enumeration of concerns by many coroners, but not all, implicitly invites respondents to deal with each concern.

4.1 Strengths and Limitations

We have only considered the UK coronial system. Differences in the legal and medical systems will influence the nature of coroners' reports, but the principles apply to all countries

where coroners, medical examiners or forensic pathologists perform similar roles. The study is also constrained by the working practices of coroners, whose varying level of vigilance to drug-related deaths, and thresholds for writing a PFD report, will have influenced the findings. The interests of coroners and the pharmacovigilance community are only partially aligned, and the reports may contain limited data.

Our study has the strength that a substantial number of coroners' reports have been made since the obligation to issue PFDs was implemented.

5. Conclusions

This study is the first study to demonstrate that Coroners' reports to prevent future deaths include valuable pharmacovigilance data. The reports of Coroners to prevent future deaths have led to wider publicity for rare but potentially fatal adverse drug reactions, and to that extent they have been successful. The reports might be more effective if those that related to NHS bodies were addressed as a matter of course to a central authority, probably either the National Reporting and Learning Service or the nascent Hospital Safety Investigation Branch, in addition to those persons and organizations currently sent reports. Unless replies are published as a matter of routine (and non-responders pursued), it will be difficult to judge whether responses have been reasonable, proportionate, and effective. Future research should focus on increasing the utility and visibility to pharmacovigilance professionals of Coroners' work associated with drug safety issues, and examining if coroners' reports have led to measurable improvements in patient safety.

Compliance with Ethical Standards

Funding No funding was received for this study.

Conflict of interest Robin E Ferner has provided medicolegal reports for Coroners and others; Craig Easton, and Anthony R Cox have no conflict of interest directly relevant to the content of this study.

Ethical Approval This study was an analysis of publicly available data. No approval was sought.

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Legends to figures and tables

Figure 1. Algorithm for selection of relevant cases. If a part of the medication process mentioned was mentioned OR a medicine was mentioned AND it caused or contributed to the death, then the case was included, unless there was a delay in assessment, investigation, or diagnosis that led to late treatment.

Supplementary Table. Cases in which coroners made reports to prevent future deaths in which they expressed concerns about medicines or the medication process that contributed to death, out of a total of 500 reports published between 24th April 2015 to 7th September 2016. See Electronic Supplementary Material 1.

Table 1. Drug classes mentioned in coroners' concerns, and number of cases in which one or more drugs of the class are mentioned.

Table 2. Post hoc classification of coroners' concerns, and number of occurrences.

Table 3. Persons and organizations to whom concerns were addressed.

Supplementary Table

[See separate file]

Table 1

Drug class	**No***
Anticoagulants (LMWH 8, warfarin 8, NOAC 2)	22
Opioids (fentanyl 3, methadone 4, morphine 4)	17
Psychiatric medicines (mirtazepine 4, olanzapine 3, citalopram 4)	17
Drugs of abuse, excluding opioids (MDMA 3, cannabinoids 4, cocaine 3, eCigarette fluid 1)	12
Antibiotics	9
Hypnotics and sedatives (lorazepam 2, zopiclone 2)	7
Pregabalin	4
Anticonvulsants	3
Emollients	2

LMWH = Low Molecular Weight Heparin, NOAC = Novel Oral Anti-coagulant, MDMA = 3-methoxy-4,5-methylenedioxyamphetamine

*Number refers to the number of cases in which one or more drugs of the class are mentioned

Table 2

Concern	No of occurrences
ADR to prescribed medicines	22
Omission of necessary treatment	21
Monitoring failure	17
Poor systems	17
Poor communication	13
Drug regulation inadequate [or failure to enforce]	9
Interaction	7
Contra-indicated	5
Failure of training	5
Susceptible patient	5
Delayed treatment	4
Failure to appreciate risk (of recurrent or continued symptoms)	4
Failure to warn of adverse drug reactions	4
Excessive supply	3
Failure to adjust dose	3
Poor medicines control (in prison)	3
Failure to follow protocol	2
Failure to take history or see patient	2
Inadequate training	2
Inappropriate dose for patient	2
Poor training	2
Effect of medication hindered diagnosis	1
Failure to follow recommended practice	1
Failure to investigate whether excessive dose was given	1
Failure to review medicines	1
Inadequate diagnosis before prescribing	1
Manufacturing fault in slow-release patch	1
Poor awareness of rare adverse drug reactions	1
Should have been avoided	1

Table 3

Addressee	**No**
Advisory Council on Misuse of Drugs	3
Ambulance	2
British Medical Association	1
Care Home	7
Chief Fire Officers' Organization	1
Brigade Chief Fire Officer	1
Private Company (including pharmaceutical companies)	3
Dispensing doctors' association	1
Department of Health	3
Driver and Vehicle Licensing Agency	1
Fire Officers	1
G4S	2
General Dental Council	1
General Practice or practitioner	14
Hospital	25
Hospital doctor	2
Hospital unit	1
Health & Safety Executive	1
Local authority	3
Local NHS Trust or Clinical Commissioning Group	36
Macmillan Cancer charity	1
Mental Health trust	2
Medicines & Healthcare products Regulatory Agency	4
Minister of Health Wales	3
Minister of Policing/crime prevention	
National Probation Service	1
National Offender Management Service	2
National Institute for Health and Clinical Excellence	2
National Offender Management Service	1
National Patient Safety Agency	1
Nurse	2
Omitted or anonymous	2
Police	1
Prison	7
Prison Minister	4

Royal College of General Practitioners	1
Royal College of Obstetrics & Gynaecology	1
Royal College of Paediatrics & Child Health	1
Regional NHS office	5
Royal Pharmaceutical Society	2
Secretary of State for Health	2
Supermarket	1

Deaths from medicines: a systematic analysis of Coroners' reports to prevent future deaths. Drug Safety. Robin E Ferner, Craig Easton, Anthony R Cox. Corresponding author Robin E Ferner, Email: r.e.ferner@bham.ac.uk

Supplementary Table. Cases in which coroners made reports to prevent future deaths in which they expressed concerns about medicines or the medication process that contributed to death, out of a total of 500 reports published between 24th April 2015 to 7th September 2016.

	Age & sex	Case report no.	To	Drug	Classification(s)	Error	Type
1.	90 F	2016-0071	Managing director Cuerden Care Homes	Low molecular weight heparin (dalteparin)	Anticoagulants	Extra five injections given; not causative. Care Home medication not sufficiently controlled – bad policies	Excessive supply (unprescribed)
2.	63 M	2016-0183	Chief Executive Officer Blackburn	Lamotrigine Sodium valproate		Omitted while undergoing surgery	Omission of necessary treatment
3.	43 M	2015-0451	Medical Director Manchester NHS Area Team	Amisulpride	Psychiatric	Failure to prescribe; poor electronic communication; failure to notice omission of treatment; schizophrenia; hanged	Omission of necessary treatment
4.	M	2015-0229	Chief Executive, Brighton Chief Nurse, Brighton Ward Manger, Brighton	Codeine – four doses in 18 h	Opioids	Bipolar; fall; stage 4 kidney failure; pneumothorax; poisoned by codeine prescribed by locum; partial response to naloxone; breached local and national policy	Contra-indicated

5.	M	2015-003811	Chief Executive Officer Cambrian Group Chief Executive, Guys & St Thomas	Zopiclone + lorazepam	Hypnotics and sedatives	Obstructive sleep apnoea; severe obesity; defective CPAP machine; poor observations; failure to communicate risk to psychiatrists	Contra-indicated
6.	25 F	2015-0413	Chief Executive, Cheltenham Head of Legal Services, Cheltenham	Low molecular weight heparin Anticoagulant	Anticoagulants	Severe chest pain; anticoagulated; but pain was from splenic artery aneurysm rupture. Senior clinicians not involved;	Inadequate diagnosis before
7.	43 M	2016-0238	Spectrum Community Health National Offender Management Service G4S	Medication for depression and anxiety	Psychiatric	Hanged; did not have prescribed treatment; awaiting review by GP; health professionals not involved in ACCT [Assessment, Care in Custody, Teamwork]. Clear need for training.	Omission of necessary treatment
8.	30 F	2016-0208	A GP practice North, East & West Devon Clinical Commissioning Group	Paracetamol Pregabalin		Not prescribed. Down syndrome with learning difficulties. Mother-in-law's pregabalin. Overdose.	Poor medicines control Susceptible patient (vulnerable adult)
9.	M	2015-0394	Director, National Probation Service	Heroin	Opioids	The lack of forward planning for his release from prison increased the risk of him using heroin. Discharged to Hostel, where he took heroin: in	Monitoring failure

						bathroom for 4 h before being found collapsed.	
10.	M	2015-0468	Director Birmingham Prison National Offender Management Service Birmingham, Prisons Minister Birmingham Community HealthCare NHS Trust	Methadone Buprenorphine Diazepam Quetiapine Pregabalin Gabapentin Hyoscine 5f-AKB48 (cannabinoid)	Opioids Psychiatric Drug of Abuse Hypnotics and sedatives	He self-administered various medication - non-prescribed substance and legal highs – gained by exploiting inadequacies within the prison; post-mortem toxicology showed many drugs present. A cell search also found many drugs. Problems with screening visitors, checking prisoners, and so on.	Poor medicines control
11.	M	2015-0255	Chief Executive University Hospitals Leicester Chief Executive NHS England Chief Executive East Midlands Ambulance service	Low molecular weight heparin (dalteparin)	Anticoagulants	Stroke; delay in hospital transfer; given usual daily dose of dalteparin	Contra-indicated
12.	85 M	2015-0301	Chief Executive, Northern General Sheffield & Cardiothoracic unit	Amiodarone		No protocol for monitoring amiodarone in General Practice	Monitoring failure
13.	25 F	2015-0438	Head of Serious Incidents, Policy &	Sertraline	Psychiatric	Hanged; dose of sertraline increased; failure to	Failure to warn of ADRs

			Patient Safety Directorate, Basildon			communicate; dose of sertraline again increased; no proper medication history on assessment; risks of sertraline not communicated; prescribing without seeing the patients.	Failure to take history or see patient
14.	18 M	2016-0013	Chief Executive, Great Western Hospital	Corticosteroids		Congenital adrenal hyperplasia; corticosteroid omitted after admission	Omission of necessary treatment (Withdrawal of corticosteroids)
15.	32 F	2015-0463	Teva Pharma	Fentanyl	Opioids	Accidental overdose of prescribed medication. A damaged patch released excess fentanyl	Manufacturing fault in slow-release patch
16.	80 F	2015-0196	A GP Practice Director City & Hackney GP Confederation	Asthma pump		Treated for asthma, but had heart failure; Out-of-hours service misled by prescribed medicines	Poor communication
17.	M	2016-0147	Sandwell & West Birmingham NHS Trust University Hospitals Birmingham NHS Trust	Warfarin	Anticoagulants	Fall, brain bleed, but slow to give human prothrombin complex (Beriplex®). Aortic valve replacement	Delayed treatment
18.	50 M	2015-0170	Senior Partner, Springfield Medical Practice	Sodium valproate		Post traumatic epilepsy; seen at surgery but no enquiry regarding failure to obtain a prescription for required meds; no system to	Omission of necessary treatment; Poor systems

						highlight patients who fail to obtain necessary treatment	(regarding repeat prescribing)
19.	68 F	2015-04041	Chief Executive, Royal Bolton Hospital	Lorazepam	Hypnotics and sedatives	Family allege that twice the recommended dose given; chart did not record this; not causal	Failure to investigate whether excessive dose was given
20.	16 F	2016-0222	Chief Executive, Walsall	Diclofenac		Recognised ADR: bleeding; poor transmission of information; failure to consider drug cause	ADR to prescribed medicines (not considered)
21.	36 F	2016-0143	Rotherham Hospital	Paracetamol		Severe malnutrition; standard dose of paracetamol given; but Mrs C weighted less than 50 kg; deranged blood tests of liver function	Inappropriate dose for patient
22.	36 M	2016-0239	Chief Executive, Wallich Centre Another	Drug of abuse	Drug of Abuse	Hostel for the homeless. Found in lavatory with needle in groin. Helped to bed by fellow resident. Found dead next morning. Staff had no training or guidance.	Failure of training Monitoring failure (after overdose)
23.	50 F	2015-0410	Chief Executive, Nottinghamshire Healthcare NHS Trust	Opiates Quetiapine	Opioids Psychiatric	Overdose after home leave. Assessed as at high risk. Given home leave the next day. Took fatal overdose.	Failure of training Failure to appreciate risk (of further overdose)
24.	86 F	2015-0402	Senior Partner, Alexander House Health Centre, Wigan	Rivaroxiban Clopidogrel	Anticoagulants	Intracerebral haemorrhage while on dual therapy for two different conditions: transient ischaemic attacks and atrial fibrillation. Also amyloid angiopathy.	Interaction ADR to prescribed medicines Should have been avoided (NICE)

25.	25 M	2016-0058	Chief Executive, Nottinghamshire Healthcare NHS Trust Medical Director CRI Locality director for Nottinghamshire area Team	Diamorphine	Opioids	Long history of substance abuse. Overdose. Psychiatrist's assessment. Delay in appointments. A period of abstinence. A benefits pay-out. Heroin overdose caused death	Monitoring Failure Failure to warn (of OD risk after abstinence)
26.	29 days, F	2015-0289	Department of Health	Pertussis vaccine		Contrary to guidance, was not offered pertussis vaccine	Omission of necessary treatment Poor systems (No way of ensuring vaccination)
27.	83 F	2016-0252	Chief Executive Western Sussex Hospitals South East Coast Ambulance Service Integrated Care 24 Ltd	Apixaban	Anticoagulants	Hip fracture; nose bleed; called NHS 111; massive GI bleed; patient not given details of ADRs	ADR to prescribed medicines; poor communication
28.	M	2015-0273	Directors of Springfield Care Home	Doxycycline	Antibiotics	Chest infection; GP prescribed antibiotics; home had	Omission of necessary treatment

						inadequate records; doxycycline omitted	Poor systems (records inadequate)
29.	M	2016-0173	Governor, HMP Gartree Acting Chief Executive, E Midlands Ambulance Service	Prescribed and non-prescribed drugs		Plastic bag + overdose. Asphyxia and multidrug toxicity caused death—poor care. Took prescribed and non-prescribed drugs that he should not have had in his possession	Poor medicines control (in prison) Poor systems
30.	37 F	2015-0372	Home Secretary Minister of State for Crime Prevention Advisory Council on Misuse of Drugs	Methoxy-phenidine Cocaine	Drug of Abuse	Methoxyphenidine [was] not a controlled drug	Drug regulation inadequate
31.	M	2015-0453	National Offender Management Service G4S	Unknown		Drugs hidden in body cavity. Observed to be under the influence of drugs. No assessment. Lack of appreciation of risk.	Failure of training Monitoring failure (after overdose)
32.	F	2016-0117	Acting Medical Director, Barts	Morphine sulfate Dihydrocodeine Paracetamol	Opioids	Perforated caecum; caesarean; Ogilvie's syndrome [colonic dilation]; several obstetric registrars were aware that the CT scan revealed a large volume in the peritoneum, but did not then seek a surgical consult	Effect of medication hindered diagnosis

33.	49 M	2016-0057	Chief Executive, Bolton Hospital	Antianginals		A&E does not stock; pharmacy prescription; pharmacy closed; therefore, patient did not get treatment	Poor systems (difficult to supply potentially life-saving treatment)
34.	M	2015-0264	Chief Executive, Maudsley Trust	Olanzapine	Psychiatric	Maudsley failed to address the risk of developing diabetes from the long-term use of olanzapine	Monitoring failure
35.	F	2016-0078	Chief Executive, Pennine Care NHS Foundation Trust Director of Commissioning/Hea d for Mental Health, Rochdale, Hayward and Middleton CCG	Unstated		Taken to emergency department acutely anxious and planning to jump off a viaduct: she subsequently ingested an excessive quantity of prescribed medication, with fatal consequences. The 'Discharge Pad' identified that the deceased was feeling suicidal and showed that the friend who collected her had expressed concern that Susan may take all her medication at once	Poor medicines control
36.	89 F	2015-0419	Alexandra Court Care Home	Treatment for myasthenia gravis		Not receiving prescribed medication that she required to control the potentially life-threatening condition myasthenia gravis.	Omission of necessary treatment; Poor systems (no medicines reconciliation)
37.	M	2016-0248	Alexandra Court Care Home	Warfarin	Anticoagulants	Falls, chronic subdural GP was not aware he was on warfarin ADR and contraindication	ADR to prescribed treatment Susceptible patient (falls)

38.	M	2015-0192	Advisory Council on Misuse of Drugs	Acetylfentanyl	Opioids	He was known to abuse drugs and drugs paraphernalia was found in the room with him. This drug is being marketed legally and is available over the internet.	Drug regulation inadequate [or failure to enforce]
39.	86 F	2015-0161	Minister of Health for Wales Chief Executive, Cwm Taf University Health Board	Warfarin Colchicine Allopurinol	Anticoagulants	Started on colchicine and allopurinol; insufficient monitoring; cerebral infarction and haemorrhage	Interaction → ADR Monitoring failure
40.	70 M	2016-0115	Chief Executive, Medway NHS Foundation Trust	Teicoplanin	Antibiotics	Failure to obtain history of MRSA. Error in recording MRSA status Prophylaxis omitted in patient with MRSA	Omission of necessary treatment
41.	M	2016-0131	Chief Executive North East London Foundation Trust Chief Officer, Redbridge CCG	Citalopram, tramadol, mirtazapine	Opioid Psychiatric	Despite history of overdoses, his access to medicines was not limited. Overdose by ingesting excessive amounts of medicines	Excessive supply
42.	84 M	2015-0317	National Patient Safety Agency Chief Fire Officer Staffordshire	Cetraben emollient cream		Burned to death	ADR to prescribed medicines Susceptible patient (smoker)

			Chief Fire Officers Association				
43.	'elderly' F	2016-0047	Chief Executive, West Wales General Hospital Glangwili Carmarthen	Low molecular weight heparin (Tinzaparin)	Anticoagulants	Breakdown of a left gluteal haematoma caused by tinzaparin therapy. Failure of monitoring creatinine or effect	Monitoring failure Failure to adjust dose
44.	F	2015-0254	Chief Executive, East Kent Hospital	Anticoagulant therapy	Anticoagulants	Multiple rib fractures. INR 6. Haemothorax. Death	ADR to prescribed medicines
45.	M	2016-0163	Director of Commissioning, NHS England, Central Midlands President Chief Fire Officers Chief Executive Reckitt Benckiser.	E45 emollient cream		Burned to death	ADR to prescribed medicines Susceptible patient (smoker)
46.	50 F	2015-0392	New Court Surgery	Citalopram	Psychiatric	Depressed. Hanged. Citalopram for 5½ years without review	Monitoring failure
47.	66 F	2015-0195	Omitted	Antibiotics	Antibiotics	Necrotizing fasciitis post op; inadequate antibiotic therapy	Omission of necessary treatment
48.	83 F	2015-0221	Betsi Cadwaladr University Health Board	Risperidone	Psychiatric	Failure to review medication; falls' fracture femur. Death	Failure to review medication ADR to prescribed medicines
49.	58 M	2016-0228	Chief Executive, Stockport NHS Trust	Enoxaparin	Anticoagulants	Deep vein thrombosis after fracture tibia and fibula.	Inappropriate dose for patient

						Weighed 99.8 kg. Given dose of 40 mg. Accurate weight is essential	
50.	:50 F	2016-0111	Chesterfield Royal Hospital	Potassium chloride		Prolonged QT interval, ventricular tachycardia, hypokalaemia 2.4 mmol/L, alcoholic liver disease	Monitoring failure Failure to follow protocol Omission of necessary treatment
51.	1 day M	2015-0377	Medical Director, Whittington Hospital	Oxytocin		Meconium stained liquor. Delay in starting Syntocinon® infusion, which should have been started 4½ hours before. Baby died.	Delayed treatment Poor training
52.	F	2015-0414	University Hospital Birmingham Birmingham Women's NHS Foundation Trust	Low molecular weight heparin (Enoxaparin)	Anticoagulants	Mechanical mitral valve; advised to avoid pregnancy; problem with valve; thrombosis of prosthetic valve; failure of hospital clinicians to prescribe adequate doses of enoxaparin contributed to the fatal thrombosis	Omission of necessary treatment
53.	20 M	2015-0191 J	Home secretary	MDMA	Drug of Abuse	MDMA – Drug of Abuse only (both brothers) obtained via Dark Web	Drug regulation inadequate
	19 M	2015-0191 T	Home secretary	MDMA	Drug of Abuse	MDMA – Drug of Abuse only (both brothers) obtained via Dark Web	Drug regulation inadequate
54.	25 F	2015-0217	Department of Health	eCigarette fluid	Drug of Abuse	Ingestion of one bottle → multiple organ dysfunction → death	Drug regulation inadequate

55.	M	2015-0282	Chief Executive University Hospital of Wales Consultant Geriatrician	Morphine	Opioids	Failure to inform GP of inadvertent overdose; inadequate systems to inform GP	Poor communication Poor systems (failure to warn of potential ADR)
56.	63 F	2016-0174	North Middx Hospital	Clozapine	Psychiatric	ADR → myocarditis [Monitoring failure when admitted] Recommendation not related to ADR, but ADR → death	ADR to prescribed medicines
57.	83 F	2016-0062	Chief Executive Officer, East Lancashire Healthcare	Low molecular weight heparin	Anticoagulants	Fracture of left leg and ankle. □ LMWH stopped at discharge. Deep venous thrombosis, pulmonary embolus, death	Omission of necessary treatment
58.	18 M	2016-0254	Cambridge and Peterborough NHS Foundation Trust A GP Practice CCG NHS England	Antidepressant	Psychiatric	Seen by a nurse, who recommended an antidepressant GP prescribed anti-depressant without seeing patient Walked in front of a train	Failure to warn of ADRs Failure to take history or see patient Poor communication
59.	78 M	2015-0247	Chief Executive, Royal Devon & Exeter	Flucloxacillin	Antibiotics	Developed cholestatic jaundice with flucloxacillin. Discharged without notifying GP of this. GP Practice nurse prescribed flucloxacillin again, provoking a fatal reaction	Poor communication Failure to warn of ADRs

60.	80 F	2016-0156	Manager, Acorn Lodge Care Home	Oxygen		It had been reported that the patient had been lying supine on the bed saturating at 84% and struggling to breath. The oxygen could not be heard to be running and it was noted that only 1 litre was running when this should have been a15 litre flow with the mask applied.	Omission of necessary treatment Poor training
61.	85 M	2016-0171	Chief Executive, South Manchester University Hospital Trust	Antibiotics	Antibiotics	Discharged from hospital without antibiotics or a discharge letter	Omission of necessary treatment Poor communication
62.	M	2015-0237	Chief Constable of Surrey	Cocaine Amphetamine Butylone	Drug of Abuse	Arrested. Taken in a police van. Died. Incomplete information provided to arresting officers. Especially that he had previously swallowed class A drugs. Drug-related death.	Poor communication Failure of training
63.	36 M	2015-0231	Director of Pharmacovigilance, MHRA	Cocaine Citalopram	Psychiatric Drug of Abuse	Blood contained cocaine, citalopram, methadone, heroin Subarachnoid haemorrhage after cocaine while taking citalopram The drugs led to death	Interaction
64.	M	2016-0295	Advisory Council on Misuse of Drugs	Pentobarbital		Self-administered; kept in the veterinary practice where deceased worked; it is abused.	Drug regulation inadequate

						It is only a Schedule 3 drug, not Schedule 2.	
65.	48 M	2016-0010	Minister for Policing, Fire, and Criminal Justice DVLA Medical Branch Chief Medical Advisor	Alcohol Synthetic cannabinoid	Drug of Abuse	Hanging in prison. Had taken legal highs (5F AKB-48, 5F PB-22)	Drug regulation inadequate
66.	93 F	2015-0310	Minister of Health Wales Chief Executive NHS Wales	Levothyroxine		Failure to record regular medication on admission; absence of medicines reconciliation policy; thyroxine omitted for five weeks	Omission of necessary treatment Poor systems (No medicines reconciliation)
67.	34 M	2016-0224	Governor, HMP Rochester	Anabolic steroid	Drug of Abuse	Anabolic-steroid induced cardiomyopathy; ventricular tachycardia, probable pulmonary embolism. Death in prison.	Delayed treatment Failure to follow protocol Inadequate training
68.	1 day M	2015-0177	Department of Health; Royal College of Obstetrics NICE Royal College of Paediatrics	Antibiotics	Antibiotics	Group B streptococcus in previous pregnancy; no prophylactic antibiotics. Baby died from Group B strep	Omission of necessary treatment
69.	34 M	2015-0444	Worcestershire Health and Care	Propranolol Citalopram	Psychiatric	Asthma; had previously had propranolol. This was contra-	Contra-indicated

				Olanzapine Amitriptyline		indicated, but not noted to be contra-indicated in the medical records. While attempts had been made to stop it, it had been reintroduced	Monitoring failure (ECG)
70.	74 M	2015-0400	Chief Executive, Cardiff and Vale University Health Board	Noradrenaline		Intensive care after major bladder surgery, noradrenaline line inadvertently disconnected. Failure to label IV lines. No protocol for this.	Omission of necessary treatment Poor systems (Lines not labelled)
71.	74 F	2016-0014	Churchgate Surgery; Macmillan Cancer Care; Takeda	Fentanyl patch	Opioids	Took a hot bath while wearing a fentanyl patch; died. Death was caused by fentanyl toxicity. Patient Leaflet warns on page 8 of 'prolonged hot bath,' but these terms are not defined	Failure to warn of ADRs
72.	64 M	2016-0246	Doncaster Royal Infirmary	Fluticasone (in Seretide®)		Pneumonia in a man with lung cancer. Inhaled fluticasone lowered his immunity. Coroner determined that fluticasone is not useful if the eosinophil count is not raised	ADR to prescribed medicines
73.	56 F	2015-0295	Director of Pharmacovigilance, MHRA Director CCP, NICE	Lisinopril Spironolactone		Chronic kidney disease, Type 2 DM, fibromyalgia, heart failure. Twenty-two different medicines. Non-prescribing nurse printed a prescription, then GP signed Hyperkalaemia 9.7 mmol/L → death	Interaction Poor systems (non-prescriber decided prescription)

			Medical Director, Lincolnshire Community Health Service				
74.	54 M	2015-0210	Secretary of State for Health Chief Executive Officer, University Hospital South Manchester	Warfarin	Anticoagulants	Failed to attend anticoagulant clinic on three occasions; lack of a system for repeat prescribing.	Poor systems (for repeat prescribing)
75.	77 F	2015-0423	Chief Executive, HC-One [Care Homes]	Low molecular weight heparin (dalteparin)	Anticoagulants	Fractured neck of femur. Policy is to give prophylactic low molecular weight heparin for 4 weeks; documents on discharge said 3 weeks; 'notes inaccurate.'	Poor communication (wrong information)
76.	60 F	2016-0197	Chief Executive, East Lancashire Healthcare NHS Trust	Pharmacological thrombo-prophylaxis	Anticoagulants	Fracture left arm and leg; not given appropriate prophylaxis; deep; vein thrombosis, death. Failure to follow Trust protocol	Omission of necessary treatment Poor systems (Failure to follow protocol; e-prescribing did not extent to the emergency department)
77.	95 F	2015-0241	Chief Executive, Heart of England NHS Foundation Trust	Low molecular weight heparin (enoxaparin) and aspirin	Anticoagulants	Atrial fibrillation, congestive heart failure, chronic kidney disease. Bled from duodenal ulcers. Cirrhosis.	ADR to prescribed medicines Interaction

						Electronic discharge letter and written prescription differed	
78.	23 M	2015-0474	Medical Director, Greater Manchester NHS Area Team Chief Executive, Greater Manchester West Mental Health NHS Foundation Trust Bodmin Road Health Centre	Benzodiazepine (diazepam)	Hypnotics and sedatives	Hanging; illicit drugs (benzos) and legal highs found. Confusion over benzodiazepine dose reduction. Phoenix Futures (addiction support service) cannot prescribe	Poor communication
79.	M	2016-0017	Chief Executive, Stockport NHS Foundation Trust	Insulin levemir		Accidentally omitted Died of diabetic keto-acidosis	Omission of necessary treatment
80.		2016-0242	Chief Executive. Central Manchester University Hosp NHS Foundation Trust	Co-amoxiclav	Antibiotics	Given prophylactically Known to have penicillin allergy by GP letter; co-amoxiclav contains a penicillin. Patient given co-amoxiclav, developed toxic epidermal necrolysis, and died.	Contra-indication ADR to prescribed medicines
81.	94 M	2016-0075	Chief Executive, Barts Health	Opiates (morphine sulfate, codeine, fentanyl via epidural)	Opioids	Fall at home. Dynamic hip screw; pain managed with opiates; gradually increasing opiate toxicity led to aspiration pneumonia and death	ADR to prescribed medicines Failure to adjust dose Susceptible patient

82.	35 M	2015-0298	Dorset Healthcare University NHS Foundation Trust HMP Exeter	Methadone	Opioids	Known abuser of heroin, amphetamine, diazepam, cannabis. No drugs for weeks before admission. Risk of self-harm. Under 30–60 minute observation. Given medication for 'seizures and detoxification; dead in the morning	ADR to prescribed medicines Monitoring failure Poor systems Poor Communication
83.	32 M	2015-0382	Governor, HMP Hewell Worcestershire Health & Care Trust	Methadone Mirtazapine Olanzapine Zopiclone	Opioids Psychiatric Hypnotics and sedatives	Known high risk drug taker who took prescribed and other medicines in his cell. Death in prison	Failure to appreciate risk (of illicit drug-taking) Poor communication Monitoring failure
84.	29 M	2016-0042	Secretary of State for Health	Acetylfentanyl	Opioids	'Legal high'	Drug regulation inadequate
85.	F	2015-0199	Chief Executive, Surrey & Sussex Healthcare Chief Executive, Surrey & Borders Partnership	30 sleeping tablets		Overdose. But Coroner's concern was the misunderstandings arising from untrained staff as interpreters; and poor assessment	Poor communication (unqualified interpreter) Inadequate training Failure to appreciate risk
86.	45 F	2016-0123	Chief Executive, MHRA	Opiates Morphine Tramadol	Opioids Psychiatric	Escalating dose of oral morphine: 100 → 280 → 500 ml	ADR to prescribed medicines

				Pregabalin Mirtazapine		Morphine 10 mg/5 ml is not subject to constraints (Schedule 5 of the Misuse of Drugs Act.) Then died. 500 ml could be issued without control	Failure to adjust dose Drug regulation inadequate
87.	36 M	2016-0081	A GP Practice	Mirtazapine Pregabalin	Psychiatric	Hanged; treatment was stopped by doctors at acute hospital pending review; not reviewed before his suicide. Concern: the effectiveness of existing office systems and procedures in relation to the receipt of discharge summaries from hospitals which advise on the review of patient's medication.	Poor systems (advice on review of medication)
88.	17 M	2016-0176	Medical Director, East London NHS Foundation Trust	Cannabis MDMA	Drug of Abuse	Taken to hospital with a drug related psychotic episode after having taken cannabis and ecstasy at a music festival. Assessed. Discharged with no plan. Deteriorated. Police officers saw him running towards a river. One gave chase. Jack jumped in the river and drowned.	Poor communication Failure to appreciate risk (of recurrent or continued symptoms) Poor systems

89.	79 F	2016-0096	General Dental Council British Medical Association Royal Pharmaceutical Society Royal College of GPs NHS England, Wales, Scotland	Warfarin Miconazole gel	Anticoagulants Antibiotics	Atrial fibrillation on warfarin Two weeks before admission: miconazole gel for oral thrush Intracerebral haemorrhage INR (clotting test) > 10 [Therapeutic 2.5]. Died	Interaction: ADR to prescribed medicines
90.	36 M	T2015-0309	Chief Executive, Norfolk & Suffolk NHS Foundation Trust	Medication for psychiatric disease	Psychiatric	Medication changed. Psychiatrist warned of the need to monitor. Care coordinator did not know what to look for.	Monitoring failure Poor communication Failure of training
91.	86 M	2016-0079	Chief Executive, Royal Pharmaceutical Society Chief Executive, Dispensing Doctors' Association	Finasteride		Finasteride comes in a blister pack. Snipped and placed in MCCA. Deceased swallowed a tablet still in its blister pack. It perforated the gut and he died. Professional bodies advise against this.	Failure to follow recommended practice
92.	M	2015-0262	Minister for Health, Wales	Warfarin	Anticoagulants	Warfarin for metallic heart valve Missed an INR check; continued prescribing without any check; then warfarin prescription was discontinued. Pharmacist	Monitoring failure

			Chief Executive Cwm Taf University Health Board A GP Practice Primary Clinical Director, Aneurin Bevan University Health Board Consultant Psychiatrist, North Community Mental Health Team			nonetheless supplied it; the patient died from gut haemorrhage	
93.	96 F	2016-0080	Chief Executive Officer, Stockport NHS Foundation Trust	Co-trimoxazole Teicoplanin	Antibiotics	Knee replacement about 2000. The knee became septic. No antibiotics were given for 48h. Then he was treated with co-trimoxazole. He was also prescribed teicoplanin (but this was omitted for 24h). He developed disseminated intravascular coagulation and died	Omission of necessary treatment (teicoplanin) ADR to prescribed medicines (co-timoxazole)
94.	M	2015-0437	Medical Director, Barts Health	Heparin	Anticoagulants	Unwitnessed fall; fractured hip and shoulder, confused with heparin.	ADR to prescribed medicines
95.	37 M	2016-0249	Practice Manager, GP Medical Centre;	Opioids Codeine Methadone	Opioids Hypnotics and sedatives	Drank alcohol and developed bronchopneumonia. In hospital,	Interaction—ADR to prescribed medicines

			Medical Director NHS England Medical Director, Greater Manchester	Clonazepam		and given naloxone. Self-discharged Given daily meds 'Although the prescription was stopped, it was started again in error' (clonazepam).' Found dead in bed	Poor systems (erroneous reinstatement of prescription)
96.	M	2016-0245	Governor, Leicester Prison	Cannabinoid	Drug of Abuse	Hanging in prison cell – 'low traces of Mamba' — unclear of relevance of Mamba. Inadequate observation. Inappropriate delay in help.	Monitoring failure Delayed treatment (of hanging)
97.	F	2016-0049	Chief Executive, Sainsbury's Chief Executive Oadby & Wigston Borough Council Chief Executive, HSE	Warfarin	Anticoagulants	On warfarin; fell when lift doors opened without warning; hit head. Suffered a large subdural bleed and died	ADR to prescribed medicines (action relates to door opening)
98.	87 F	2015-0169	Newgate Medical Group	Warfarin	Anticoagulants	Atrial fibrillation. INR 8.0, Fall while the INR was high, in spite of vitamin K, developed intracerebral haemorrhage, and died.	Monitoring failure: poor systems (prescribing and monitoring warfarin treatment)
99.	M	2016-0308	MHRA	Hyoscine butylbromide		Given hyoscine butylbromide during routine colonoscopy. Sudden deterioration. Cardiac arrest. Died	ADR to prescribed medicines Poor awareness of rare ADRs

						Risk of ADR not widely known. Summary of Product Characteristics is unsatisfactory. Requires amendment.	Susceptible patient (ischaemic heart disease – undiagnosed)

Abbreviations: A&E – Accident and Emergency Department; ADR – adverse drug reaction; DVLA – Driver and Vehicle Licensing Authority; GP – General Practitioner; HMP – Her Majesty's Prison; HSE – Health & Safety Executive; INR – international normalized ratio; LMWH – low molecular weight heparin; MCCA – multi-compartment compliance aid; MDMA = 3,4-methylenedioxymethamphetamine; MHRA – Medicines and Healthcare products Regulatory Agency; MRSA – methicillin-resistant *Staphylococcus aureus*; NHS 111 – National Health Service telephone urgent and emergency care service; NICE – National Institute for Health and Care Excellence.