Public Health England

Protecting and improving the nation's health

Understanding and preventing drug-related deaths

The report of a national expert working group to investigate drug-related deaths in England

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

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Contents

Public Health England foreword

Public Health England shared the concerns of others at the continued rise in drug-related deaths reported in 2015. As a result, PHE convened a national inquiry in partnership with the Local Government Association to investigate the causes of the rise and what could be done to prevent future premature deaths.

The national expert group for the inquiry heard detailed analysis of the previous year's drug misuse deaths data, that is, deaths registered in 2014 and in previous years. PHE welcomes the group's report and accepts all of its recommendations.

On the day of the report's publication, the Office for National Statistics also publishes its latest statistical bulletin on drug poisoning deaths reported in 2015 (ONS 2016), to which the expert group had no access. This latest data shows yet another sad increase in drug misuse deaths, as predicted by the inquiry.

In 2015 there were 2,300 drug misuse deaths in England, a further increase of 8.5% on the year before. Heroin and morphine again account for the majority of the deaths and the increase. There are also rising numbers of deaths involving new psychoactive substances, and pregabalin and gabapentin. Both are relatively small in number but of increasing concern. There are still regional variations, with some areas that previously had lower rates – and lower rates of increase – now seeing greater rises.

These latest headline findings do nothing to change the overall findings and recommendations of the inquiry. However, some of the detail of the latest figures may necessitate an increased focus on specific issues. The continued increase reinforces the inquiry's recommendation that the national programme of work to better understand and prevent drug related deaths needs to be maintained.

And it underlines the inquiry's recommendation that all system partners continue to do everything in our power to minimise further rises and ultimately to turn round this disturbing trend.

Rosanna O'Connor
Director, Alcohol, Drugs & Tobacco Division
9 September 2016

Definitions and terminology

Annual figures published by the Office for National Statistics (ONS) since 1993 cover deaths in England and Wales related to “drug poisoning (involving both legal and illegal drugs)” and to “drug misuse (involving illegal drugs)”. The inquiry and this report are primarily concerned with drug misuse deaths, also referred to by us as drug-related deaths, though ONS uses “drug-related” for all poisoning deaths. In some cases, ONS-published analyses relate only to the wider drug poisoning dataset and these are used by us and referred to as drug poisoning deaths.

ONS’s definition of a drug misuse death is “(a) deaths where the underlying cause is drug abuse or drug dependence and (b) deaths where the underlying cause is drug poisoning and where any of the substances controlled under the Misuse of Drugs Act 1971 are involved.” Although these were the primary concern of the inquiry, it was also concerned with deaths caused by the long-term consequences of drug misuse and related ill-health.

About this report

This report presents the independent findings, conclusions and recommendations of an expert group supported by Public Health England and the Local Government Association. The expert group investigated drug-related deaths in England with the aim of understanding recent rises in deaths and helping local areas to prevent future premature deaths.

The report is based on two meetings of the group, which heard a range of evidence, supported by commissioned data analysis and informed by five stakeholder events around the country. Across these local events, around 400 stakeholders helped gather intelligence on local thinking and practice in relation to drug-related deaths.

The group’s findings are based on their synthesis of this evidence and their individual experience and expertise, as clinicians, academics or service users.

The report is intended primarily for commissioners and providers of specialist services for people who use drugs. Its recommendations are also applicable locally for clinical commissioning groups, NHS and other health, social care, criminal justice, employment and housing and homelessness services, and coroners; and nationally for Public Health England, NHS England, government departments, the Office for National Statistics, the Care Quality Commission and the Chief Coroner.

Executive summary

Introduction

There were two consecutive rises in registrations of drug-related deaths (DRDs) in England reported in 2014 (21%) and 2015 (17%), to the highest figures yet seen (ONS 2014 and 2015). Due to the typical delays in registering deaths, the increasing trend in DRDs actually started around early 2013.

Although these rises (which were chiefly in deaths associated with heroin use) could, in part, have been driven by a 'cohort effect' – from older, iller heroin users dying in increasing numbers – this did not completely explain the recent sudden increase in deaths.

Deaths also occurred across different age groups from different types of drug use in increasing numbers. There is also considerable geographical variation in the drug misuse deaths figures, with some regions and local areas showing large increases, but others seeing little change or slight falls.

Public Health England, with the Local Government Association, therefore convened a national inquiry to better understand the causes of the rises and how to reduce future premature deaths.

Components of the inquiry

There were three components to the inquiry:

- a national expert group to lead the investigation and review data and intelligence (terms of reference at annex A)
- analysis of a range of existing and commissioned data
- local events to direct the inquiry and gather intelligence on local practice to prevent DRDs

The expert group heard presentations on the evidence around drug-related deaths from some of its members and others, detailed at annex B. It then met to review what it had heard, draw conclusions and make recommendations.

The local events had presentations of national policy and data and were then focused on hearing examples from local areas about the challenges of, and their successes in, understanding and preventing DRDs.

Evidence and issues considered

The expert group and local events heard from a range of experts who presented statistical analyses of drug deaths, evidence on the risk factors associated with morbidity and mortality and evidence on the protective nature of drug treatment and of naloxone (the heroin ‘antidote’).

Conclusions

The inquiry concluded that the factors responsible for the increase in drug-related deaths are multiple and complex.

The sudden increase in DRDs in 2013 and 2014 was likely caused – at least in part – by an increase in the availability of heroin, following a fall in deaths during a period when heroin purity and availability was significantly reduced.

When heroin purity and availability returned, there was a rapid return to a longer-term, persistent background rise in DRDs since 1993.Strategies to prevent such deaths since then may have slowed the trend but had not stopped it. There are likely many factors that have caused this rise including, most notably, an ageing cohort of heroin users, many of whom started to use heroin in the 1980s and 90s, who are now experiencing cumulative physical and mental health conditions that make them more susceptible to overdose. A majority of these users appear not to be engaging in drug treatment where they could be protected.

Other factors reported in this report include increasing suicides, increasing deaths among women, improved reporting, an increase in polydrug and alcohol use, and an increase in the prescribing of some medicines.

Until we meet the general health and other needs of the ageing cohort, and address the factors leading to increased numbers of deaths in other risk groups, the evidence suggests that drug misuse deaths will continue to rise.

However, without the implementation over the past decade of evidence-based and effective drug harm reduction and treatment interventions that reduce deaths we might well assume that death rates would be even higher than they are. It is important to continue and indeed escalate efforts from within the treatment system to mitigate the potential for future rise and to galvanise efforts wider than treatment to impact on those vulnerable and most at risk, to bring rates down.

Recommendations

Based on the evidence it heard and on its conclusions, the expert group suggested some principles and recommendations for action. The principles cover:

- ensuring that the complex needs of people who use drugs are met through co-ordinated, whole-system approaches and aligned commissioning, that address health inequalities and provide better access to supportive physical healthcare and psychiatric care, along with other support which could include housing and employment
- maintaining evidence-based, high-quality drug treatment and other effective interventions for all people who use drugs, including those not currently being reached
- maintaining a balanced approach to risk and to ambitions for recovery
- reflecting on commissioning and clinical practice to avoid poor practice that could increase the risk of DRDs

The group's recommendations fall into two main areas:

1. Recommendations for action by national and local stakeholders who can directly impact on DRDs. These include:

    - ensuring drug treatment is easy to access and attractive, especially to those currently not being reached
    - rapidly optimising interventions for people coming into treatment
    - keeping people in treatment for as long as they benefit
    - strengthening governance and competence in treatment services
    - sharing learning between services who have contact with those at high risk
    - promoting effective risk management
    - intervening following non-fatal overdoses
    - promoting adequate dosing of opioid substitution treatment and supervised consumption
    - support improved access for people who use drugs to broader physical and mental health care services
    - promoting stop smoking services in drug treatment
    - supporting the provision of naloxone
    - supporting the use of naltrexone for relapse prevention
    - promoting better links with coroners
    - improving information recorded and transferred between agencies

2. The need for continued research and investigation to better understand DRDs and their prevention. These include:

    - continuing the national programme of work investigating DRDs
    - exploring with treatment providers the feasibility of further analysis of their data
    - providing additional data to local authorities
    - reviewing definitions of DRDs
    - sharing lessons between local areas where DRDs are high/low and/or have gone up/down
    - investigating the relationship between DRDs and individual, local and system-level factors that might increase risk

Activity already underway

The inquiry also heard from PHE about existing and planned activity in relation to understanding and preventing DRDs, including.

- a new Public Health Outcomes Framework indicator measuring DRDs in local areas
- promoting good practice in local drug-related death review processes
- supporting improvements in the penetration of drug services
- providing further advice on provision of naloxone
- supporting the 2016 update to the clinical guidelines for drug treatment
- improving intelligence on the adverse health effects of drugs
- collaborating with NHS England on addiction to medicines

Introduction

In early 2015, in response to the Office for National Statistics (ONS) annual report on drug-related deaths (DRDs) reporting a rise in deaths (ONS 2014), Public Health England (PHE) convened a national summit with the Local Government Association (LGA) and DrugScope. The summit was to explore the complex causes behind the rise in deaths and produce practical messages for key decision makers who can help prevent future drug-related deaths. DrugScope published the report of the summit and PHE reported on its analysis of the trends in DRDs.

ONS reported a further rise later in 2015 (ONS 2015) (and PHE updated its trends analysis). Although these rises (which were mainly in deaths associated with heroin use) could, in part, be driven by a 'cohort effect', from older, iller heroin users dying in increasing numbers, this did not adequately explain the recent sudden increase in deaths.

Deaths also occurred across different age groups from different types of drug use in increasing numbers. There is considerable regional variation in the drug deaths figures, with some regions showing large increases, but others seeing little change or slight falls.

PHE, with LGA, convened a national inquiry to better understand the causes of the rises and how to reduce future premature deaths.

Components of the inquiry

There were three components to the inquiry:

- a national expert group to lead the investigation and review hard and soft data
- analysis of a range of existing and commissioned data
- local events to direct the inquiry and gather intelligence on local practice to prevent drug-related deaths

National expert group

A national expert group was convened to lead the inquiry. Councillor Sophie Linden, who had chaired the January 2015 summit, agreed to also chair the expert group, whose purpose was to:

- review evidence
- scope further investigation
- develop findings
- publish conclusions and recommendations

Members of the expert group were chosen to represent a range of relevant interests, including public health, drug treatment, services users, physical and mental health, medicines safety, epidemiology, toxicology and pathology, offender management and health, and homelessness – see annex A for terms of reference and membership details.

The inquiry relates to the situation in England but representatives from Scotland and Wales were invited to join the expert group and play an active part in scoping the inquiry based on their own experiences.

The expert group heard presentations on the evidence around drug-related deaths from some of its members and others, detailed at annex B.

Data analysis

A programme of data analysis by PHE, in collaboration with other agencies and academic institutions, is providing further findings as they emerge.

PHE conducted further analysis of both ONS death data and its own NDTMS treatment data and, in addition, published an update to last year's trends report.

PHE is analysing additional data obtained from the independent National Programme on Substance Abuse Deaths at St George's University of London.

PHE commissioned the Office for National Statistics to:

- analyse data fields back to 2001 that are available in the General Mortality Register but not brought into their Drug Poisoning Database, such as employment status
- search through information on coroners' certificates that has been given to ONS but not previously coded
- derive further information on the death from coroners' records not already available to ONS

PHE is supporting work at the University of Bristol to analyse the GP patients database (Clinical Practice Research Datalink) to understand the relative contributions of methadone and buprenorphine to protecting against DRDs.

Local events

Five ‘regional’ stakeholder events gathered intelligence on current local practice in relation to preventing drug-related deaths, including what was effective or needing to be improved.

A total of about 400 local stakeholders and experts attended events in Birmingham, Manchester, Taunton, London and Darlington to hear what national data shows and share what can be done locally.

The events had presentations of national policy and data but were then focused on hearing examples from local areas about the challenges of, and their successes in, understanding and preventing DRDs.

Table discussion saw delegates suggesting firstly what they would like to feed into the national inquiry and what data and other information it needed to consider as part of its work, and, secondly, what they would do in the near future in their local areas to understand and prevent deaths.

Evidence and issues considered

The expert group and local events heard from a range of experts who presented statistical analyses of drug deaths, evidence on the risk factors associated with morbidity and mortality and evidence on the protective nature of drug treatment and of naloxone (the heroin ‘antidote’). These evidence presentations are listed in annex B.

An outline summary of the evidence and issues considered by the enquiry is included at annex C but they covered:

- drug-related death data alone and matched with treatment data
- the protective nature of drug treatments and of naloxone
- findings from the drugs data warehouse: a large cohort of opioid users in contact with drug treatment and/or criminal justice services
- consideration of drugs other than opioids, including new psychoactive substances
- processes for investigating drug-related deaths, including drug death reviews and investigations and toxicology
- physical and mental health, including smoking and respiratory health, liver disease and suicide
- local considerations, including issues faced by local areas and what local areas said worked in understanding and preventing drug-related deaths

Conclusions

What is causing the increase in DRDs?

The inquiry concluded that the factors responsible for the increase in drug-related deaths are multiple and complex.

The apparent sudden increase in drug-related deaths in 2013 and 2014 was likely caused – at least in part – by an increase in the availability of heroin, following a fall in deaths during a period when heroin purity and availability was significantly reduced.

When heroin purity and availability returned, there was a rapid return to a longer-term, persistent background rise in DRDs since 1993 that has been resistant to strategies to prevent drug-related deaths. There are likely many factors in this rise with the principle one being an ageing cohort of 1980s and 1990s heroin users who are experiencing cumulative physical and mental health conditions that make them more susceptible to overdose. A majority of these users appear not to be engaging in drug treatment where they could be protected.

Other factors contribute smaller numbers to the rise but some may become more significant. They include:

- increasing suicides by drug poisoning generally and among drug users specifically – still far fewer in number than accidental poisoning but steadily rising
- increasing deaths among women – far fewer in number than among men but steadily rising even during the period of reduced heroin availability
- a potential increase in people using multiple drugs and alcohol concurrently – there are certainly more people reported as dying with multiple drugs in their systems but the link to the prevalence of polydrug use is unproven
- an increase in the prescription of medicines (there is a correlation here as the frequency with which some prescribed medicines are found in drug misuse deaths has risen significantly but there is no evidence of causation)
- improved coroner identification and reporting of drug deaths – this seems likely but is as yet unproven

Until we meet the general health and other needs of the ageing cohort, and address the factors leading to increased numbers of deaths in the emerging

risk groups above, all the evidence suggests that drug misuse deaths will continue to rise.

What increases or protects against DRDs?

We have evidence-based interventions to reduce the number of deaths. Without their implementation we can assume that death rates would be higher than they are. Although the rate is increasing, we can assume we are still having an impact and we should continue and indeed escalate those efforts to mitigate the rise.

There appears to be a correlation between economic and health inequalities, deprivation and drug-related deaths. The highest rates and some of the sharpest rises in drug-related deaths are in the North East and the North West of England. However, this is also where drug use prevalence is high (and heroin use was high in the 1980s in the North West and 1990s in the North East), which may account for some of the correlation.

People who move between services for drug treatment, mental health, housing support or physical health, and have the most complex needs, are at significant risk of drug-related deaths.

Studies have identified periods of greatly elevated risk on entering and leaving drug treatment but significant protection during treatment.

PHE analysis of the treatment population did not establish a direct relationship between the policy focus on recovery and DRDs but poor recovery-orientated practice could put people at greater risk.

Drug-related deaths are not always sufficiently investigated, with a lack of routine testing for some drugs and the near-absence of testing for others.

Recommendations

Based on the evidence it heard and on its conclusions, the expert group agreed to suggest some general principles for action and to make recommendations in two areas:

- recommendations for action by local authority commissioners and providers of drug services, CCGs, and NHS and other local health, social care, criminal justice and housing services, with support from PHE and others
- recommendations on the need for continued research and investigation to better understand drug-related deaths and their prevention

Principles for action

If the current high and increasing levels of drug-related death are to be tackled there are some general principles for action nationally and in local areas:

- ensure that the complex needs of drug users are met through coordinated, whole-system approaches and aligned commissioning, which address health inequalities and provide better access to physical and mental healthcare, along with social supports such as housing, employments and benefits
- maintain the provision of evidence-based, high-quality drug treatment and other effective interventions for people who use drugs, including those currently not being reached, to continue to save lives
- maintain the personalised and balanced approach to drug treatment and recovery support recommended by national drug strategies and clinical guidance
- reflect on commissioning and clinical practice to ensure that the risk of death is properly assessed and understood, and that there is no poor practice that could increase risk

Recommendations for action

The majority of the recommendations are intended not only for local authority commissioners and providers of drug services, but also for CCGs, and NHS and other local health, social care, criminal justice, employment and housing services where appropriate. It will be important that they are supported by leadership and advice – primarily from PHE but also from NHS England, NICE

and others – at the national and sub-national levels. National government and its agencies will also need to consider the resources required to implement these recommendations.

Drug treatment service commissioners and providers, with other local services, supported by leadership and advice from Public Health England

- ensure treatment is easily accessible and attractive, improving access through, for example, outreach, needle and syringe programmes, and accessible opening times
- rapidly optimise drug treatment, including adequate doses of opioid substitute medications to protect against continued use of illicit drugs
- tackle continued illicit drug use with service users, in line with (forthcoming) clinical guidelines
- retain people in drug treatment for as long as they need it and benefit – there is already adequate clinical guidance that explains how to do this
- consider the evidence for and value of broader harm reduction interventions in reducing drug-related deaths, including the provision of naloxone
- strengthen clinical governance and workforce competence in the delivery of substance misuse treatment services
- share learning and intelligence with homeless services who have contact with those at high risk
- focus on intervening following non-fatal overdoses (a major risk factor in predicting future drug-related death)
- follow guidance on adequate dosing of opioid substitution treatment and supervised consumption
- support improved access for people who use drugs to physical and mental health care services
- engage stop smoking services in drug treatment, including the use of e-cigarettes where appropriate
- ensure services recognise the specific and different needs of older and younger people
- adopt proactive approaches to risk management
- improve the recording of comorbidity and encourage coordination of physical healthcare and psychiatric care services

Public Health England

- promote guidance on adequate dosing of opioid substitution treatment and supervised consumption

- promote stop smoking services in drug treatment, including the use of e-cigarettes where appropriate
- map the provision of naloxone and support greater consistency in its provision and funding
- promote the use of naltrexone for relapse prevention. It is currently little used despite a NICE technology appraisal supporting its use in 2007 although its effectiveness and acceptability may be improved if depot formulations are approved
- produce best practice guidelines for treating older people for substance misuse problems
- promote effective approaches to active risk management
- promote better links with and information from coroners and consistency in investigations, including time taken and toxicology, such as a minimum standard post-mortem drug screen for drug-related deaths

NHS England health and justice and Ministry of Justice

- develop and promote the provision of standard information on drug users being released from prison to their local drug treatment services

NHS England and clinical commissioning groups

- promote improved coding of hospital admissions to enable better understanding of poisonings
- support improved access for people who use drugs to physical and mental health care services, including primary healthcare and health screening, smoking cessation, hepatology and respiratory health

Continued research and investigation

The majority of these recommendations are for Public Health England to lead, in conjunction as appropriate with the Office for National Statistics, drug service providers, Care Quality Commission and others.

- continue the national programme of work into drug-related deaths to monitor the implementation of the recommendations of the inquiry and collate updated analysis and new evidence where appropriate
- explore with large drug treatment providers the feasibility of conducting further analysis of their significant data and resources
- provide additional drug-related deaths data to local authorities to benchmark their performance and encourage improvement*

- review the definitions of drug-related deaths to explore consistency of classifications and explore causes not currently attributed to drug use
- work with, compare and share lessons between, local areas where drug-related deaths are especially high or low or have significantly increased or decreased
- further investigate the relation of drug-related deaths to specific factors like mental health, domestic abuse, hospital admissions and successful completion of drug treatment
- further investigate the relation between drug-related deaths and local and system-level factors like deprivation, the re-tendering of services, welfare reforms and payment of benefits
- investigate the reasons why people are moving in and out of the treatment system
- look in more detail at suicide data and at the social status of individuals dying of drug misuse deaths
- work with the Care Quality Commission to understand how primary care providers are treating substance misusers
- work with the National Institute for Health Research and other research bodies to establish research priorities in relation to drug-related deaths and their prevention

The Department of Health and PHE should give consideration to leadership, responsibility and appropriate resources for this recommended package of research and investigation.

*This recommendation preceded the announcement of the new DRDs measure in the PHOF drugs indicator, which is described in the next section.

Activity already underway

The inquiry heard from PHE about its existing and planned activity in relation to understanding and preventing DRDs, including:

- implementing a new Public Health Outcomes Framework indicator measuring drug-related deaths in local areas to benchmark their performance and encourage improvement
- supporting improvements in local drug-related death review processes by promoting good practice
- supporting local areas to increase the proportion of their drug-using population receiving drug treatment and other services (penetration)
- providing commissioners with further advice on provision of naloxone
- publishing and supporting the 2016 update to the clinical guidelines for drug misuse and drug dependence
- improving the collation, analysis and dissemination of intelligence on the adverse health effects of a range of drugs
- collaborating with NHS England on its addiction to medicines programme to reduce patient demand for and over-prescribing of medicines known to contribute to dependence and to drug-related deaths

Glossary of terms and abbreviations

Clinical guidelines – Drug Misuse and Dependence: UK Guidelines on Clinical Management, also known as “the Orange Book”, national guidance on drug treatment

Drug-related death (DRD) – used in the inquiry to cover both *drug misuse deaths* and broader deaths arising as a consequence of current or past drug misuse. Compare with *ONS*, which uses drug-related death interchangeably with *drug poisoning death*

Drug misuse death (ONS) – a death where the underlying cause is drug abuse or drug dependence, or is drug poisoning involving one or more substances controlled under the Misuse of Drugs Act 1971

Drug poisoning death (ONS) – an accidental death or suicide involving poisoning by one or more legal or illegal drugs, also called a drug related death by ONS

Naloxone – opioid antagonist used to reverse the effects of an opioid overdose

Naltrexone – opioid antagonist used to prevent relapse into opioid use and dependence

Office for National Statistics (ONS) – publishes annual figures on deaths from *drug poisoning* and *drug misuse*

Opioid – any of a range of poppy-derived or synthetic drugs that act on opioid receptors

Public Health Outcomes Framework (PHOF) – sets out desired outcomes for public health and the indicators that show how well they are being achieved

Supervised consumption – a patient is witnessed taking a dose of their medication, in this context an opioid substitution medicine, most commonly methadone and usually in a community pharmacy

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Annex A. Expert group terms of reference

National expert working group to investigate drug-related deaths in England
Terms of reference (draft v0.4 16/5/16 updated 3/8/16)

Background
Drug related deaths (DRDs) reported in 2015 showed a further rise following the first reports of a rise in 2014. The majority of the deaths and of the rises are associated with heroin use. Public Health England is conducting an inquiry into the causes of these recent rises and the prevention of future deaths. A national group convened by Public Health England with the Local Government Association will review what we know, scope further investigation, review the findings and publish its conclusions and recommendations.

Aims of the group
- to share available information and analysis on the causes and prevention of DRDs
- to scope what further information and analysis are needed by the group to better understand what causes DRDs and how they might be prevented.
- to review the findings to draw conclusions from them about the causes of recent rises in drug related deaths and, based on those conclusions, make recommendations for how premature deaths attributable to drug misuse might be prevented in future

Chair, membership, observers and secretariat (also see appendix A)
The group will be chaired by Cllr Sophie Linden, Deputy Mayor, London Borough of Hackney.

Members will be invited who represent expertise and interests in:

- local government public health
- service user representation
- controlled drugs safety
- drug dependence and treatment
- epidemiology
- toxicology and pathology
- mental health
- emergency care
- respiratory health
- hepatology
- offender management and health

- multiple and complex needs
- homelessness
- national statistics
- Scotland
- Wales

Observers will attend from:

- Local Government Association
- Department of Health
- Public Health England
- Home Office

Secretariat will be provided by:

- Public Health England

Meetings
The group is only scheduled to meet twice, firstly to share available information and scope what further information is needed and, secondly, to review the findings, draw conclusions and make recommendations.

Meetings will be held in London and all necessary expenses will be met by PHE. Travel arrangements should be made through PHE.

Outputs
An independent report will be submitted by the group to PHE, which will consider how its findings and recommendations are best published and their implementation supported.

Appendix A: Invited members and observers are:

- Local Government Association – Paul Ogden and Mark Norris
- Association of Directors of Public Health – Professor Jim McManus
- Care Quality Commission – Sarah Dennison
- National Addiction Centre – Professor Michael Lynskey
- MORPH – Si Parry
- Epidemiology, Bristol University – Professor Matt Hickman
- Criminology, Kent University – Professor Alex Stevens
- Mental health and risk, Manchester University – Dr Tim Millar
- CNWL Club Drug Clinic and PHE – Dr Owen Bowden-Jones
- SLAM and PHE – Dr Michael Kelleher
- Toxicology, St George's and TICTAC Communications – Dr John Ramsey
- Respiratory health, King's College – Dr Caroline Jolley
- Hepatology, Imperial College and St Mary's – tbc
- National Confidential Inquiry into Suicide and Homicide by People with Mental Illness – (invited)
- National Offender Management Service – Ken Elliot
- NHS England Health & Justice – Christine Kelly / Fiona Grossick
- Collective Voice – Paul Hayes
- Change Grow Live (cgl) – Dr Prun Bijral
- Making Every Adult Matter (MEAM) – Andrew Brown
- Homeless Link – Gavin Benn
- Community Rehabilitation Companies – tbc
- Office for National Statistics – Claudia Wells
- National Forum on Drug-Related Deaths in Scotland – Professor Roy Robertson
- Public Health Wales – Josie Smith
- European Focal Point – Craig Wright
- Department of Health officials
- Home Office officials
- Public Health England officials

Annex B. Evidence presentations

The expert group heard presentations on the evidence around drug-related deaths from some of its members and others as follows and in this order:

- Deaths related to drug misuse in England, 2014 registrations (published data) – Claudia Wells, Office for National Statistics
- PHE analysis of drug misuse deaths data – Martin White, Public Health England
- NPS-related harm and death – Dr Owen Bowden-Jones, CNWL Club Drug Clinic and Public Health England
- Physical health and mortality – Dr Michael Kelleher, South London and Maudsley and Public Health England
- Raising awareness of potential lung health problems with people who
- use drug and alcohol services – Dr Caroline Jolley, King's College
- Mental health – Dr Owen Bowden-Jones, CNWL Club Drug Clinic and Public Health England
- The protective effect of naloxone – Professor Michael Lynskey, National Addiction Centre
- Impact of opioid substitution treatment on risk of mortality in the community and leaving prison – Professor Matt Hickman, Bristol University
- Toxicology – Dr John Ramsey, St George's and TICTAC Communications
- CQC and the regulation of controlled drugs – Sarah Dennison, Care Quality Commission
- Drug alerts processes – Steve Taylor, Public Health England
- Deaths related to drug misuse in England (further analysis) – Claudia Wells, Office for National Statistics
- Other data analysis and reporting being undertaken by PHE and its partners – Martin White and Craig Wright, Public Health England
- Excess mortality among opiate users: record-linkage for 200,000 opiate users in England, 2005-2009 – Dr Tim Millar, Manchester University
- Findings of the PHE/LGA DRDs local events – Steve Taylor, Public Health England
- Difference in mortality risk during key risk periods according to type of OST medication – Professor Matt Hickman, Bristol University

Annex C: Outline of evidence and issues considered

Death and treatment data

ONS drug poisoning data

The Office for National Statistics (ONS) publishes annual statistical bulletins on deaths related to drug poisoning in England and Wales. These cover deaths registered in the previous year where the cause of death is drug poisoning and include the subset of drug misuse deaths. Findings included (ONS 2015):

- the registrations of drug misuse deaths in England increased by 17% in 2014, following an increase of 21% in 2013
- a 64% increase in heroin-related death registrations since 2013 (England and Wales)
- consecutive rises followed a period between 2008 and 2012 where the number of drug misuse deaths fell
- rate of drug-related deaths per head of population in England is among the highest in Europe (but so is problem drug use)
- drug use disorders are the third ranked cause of death in the 15-49 age group in England
- drug poisoning accounted for one in seven of all deaths among people in their 20s and 30s in 2014
- deaths among the 20-29 age group had dropped but recently increased – going against the theory that this is only a problem for an ageing cohort of drug users
- regional variations in death rates exist and are significant for some regions. Data is available at local authority level but is difficult to interpret
- unlike in the reporting of alcohol deaths, drug misuse deaths reported by ONS do not cover the ‘attributable fraction’ of all deaths caused by drug misuse as they are unable to quantify, for example, the impact of past drug use on deaths from liver disease

More in-depth analysis of ONS data was showing a strong correlation between DRDs and deprivation and low income employment, and a strong correlation between DRD rates and men who were divorced/single, and women who were divorced.

ONS data analysed by PHE

PHE analysed and presented ONS data by year of death rather than by the year when the death is registered, which is what ONS publishes. This analysis had similar findings to ONS but showed (PEH 2015):

- despite some evidence that changes in registration timescales (faster registration of recent deaths and some catching up on a backlog of earlier deaths) have had an impact on apparent annual numbers, there has also been a genuine increase that cannot be explained by these changes
- drug deaths in women are small in number compared to men, who dominate the figures, but the number of women dying is increasing
- similarly, suicides account for only small numbers compared to accidental poisoning, which dominate the figures, but are also steadily growing
- heroin deaths are becoming more polysubstance in nature, with alcohol the most common other substance but increases in the proportion of deaths in which other substances, including benzodiazepines, are reported

ONS data matched with NDTMS

PHE had further been able to match ONS data to its own treatment data in NDTMS to better understand the relationship between drug treatment and drug deaths (PHE 2015), and the protective benefit of drug treatment (see next section).

The majority of opiate misuse deaths in the past five years occurred in those who were not identified as being in and had not recently been in community drug treatment. Tentative matching to prison treatment data suggested this is the case even if both community and prison treatment are considered. This proportion did not change significantly over this time.

Matching death and treatment data had not produced any evidence that a focus on recovery and on successful treatment completion has had a negative impact and led to more drug deaths, though it will be important to maintain vigilance, both to clinical and commissioning practice and to analysing emerging data, to identify any early evidence of such an impact and respond appropriately.

NPSAD data

Data obtained by PHE from the National Programme on Substance Abuse Deaths (NPSAD) required further analysis and findings were not available to the inquiry in time to report them.

Protection against drug-related deaths

The protective nature of drug treatment

Although some studies have found increased risk of death in the first few weeks of drug treatment – mostly as a result of induction onto methadone-based opioid substitution treatment (OST) – being in treatment after this short time is highly protective against drug-related deaths (Cornish 2010, Degenhardt 2011, White 2015). This protection is maintained and even increases when staying in treatment for a prolonged period. For each year on OST the risk of death reduces by 13% (Kimber 2010).

Conversely, leaving drug treatment (whether or not planned) is a time of increased risk, with the mortality rate substantially greater in the first four weeks after leaving treatment than in the rest of time off treatment (Cornish 2010).

The risk of dying in the first four weeks after leaving prison is significantly lower if someone leaves on OST than if they are not on OST (after that there is no difference) (IDTS study not yet published).

Supervised consumption of OST medication is also highly protective of the individual taking the medication and of others who might inadvertently or deliberately take it (Strang 2010).

Some studies are suggesting a greater protective benefit from buprenorphine than methadone, especially at treatment initiation, though they also show a much higher rate of retention in treatment on methadone than on buprenorphine (Kimber et al 2015). These studies are limited and their findings may not be generalisable to the broader drug treatment population but they support the need to examine whether, and if so how, buprenorphine and methadone treatments might be combined to reduce mortality risk, promote retention in treatment and aid long term recovery.

Protective nature of naloxone

Most overdoses occur in the presence of others (Powis 1999) and death is immediate in only a minority of cases but, while the majority of witnesses make active efforts to resuscitate someone who has overdosed, some may delay calling emergency services (Baca & Grant 2007).

The provision of naloxone, and overdose training, has been demonstrated to decrease overdose-related mortality (EMCDDA 2015). Naloxone has some rare side-effects but the risks are minimal when the alternative is someone dying.

Naloxone distribution to heroin users is likely to reduce overdose deaths and is cost-effective (Coffin and Sullivan 2013).

Since October 2015's legislative change naloxone can be provided more widely by drug services and without having to be prescribed to an individual (PHE 2015).

Findings from the drugs data warehouse

Analysis of data from the drugs data warehouse – a large cohort of opioid users in contact with drug treatment and/or criminal justice services – found (Pierce 2015 and 2016):

- fatal overdose was the highest cause of premature death among the cohort but there were also highly elevated levels of suicide, liver disease, homicide, circulatory disease, cancer and respiratory disease in this group
- the risk of fatal overdose during periods of treatment was approximately half that during periods out of treatment. This reduction in risk was associated with prescribing treatment but not with the provision of psychological support in isolation
- the risk of fatal overdose is highest in the month after leaving treatment. Post-treatment risk for those who completed their treatment was the same as for those who did not
- there is some indication that the rate of fatal overdose may be lower among those in contact with the criminal justice system who had no treatment contact compared to those dipping in and out of treatment. It is possible that due to fewer complicating factors enabling this group to be more functional, they do not reach a stage where treatment is needed but not enough is known about them to allow any clear conclusions about this phenomenon

- the risk of DRD among women is lower than among men at a younger age, but by the age of 45 the risk is the same among men and women

Drugs other than opioids

New psychoactive substances

Although the number and proportion of deaths associated with new psychoactive substances (NPS) is relatively small, both are increasing and may present a more significant problem in the future, especially as not enough is known about the long term effects of their use.

In addition, it may be that the reported numbers of deaths are artificially low because many NPS are not routinely tested for or are not detected post-mortem.

There are new or amplified harms associated with some NPS that are not generally seen, at least to the same degree, with established drugs of misuse. These include, for example, severe withdrawals associated with GHB/GBL, high risk sexual behaviours associated with methamphetamine use, and high frequency injecting associated with mephedrone.

Although still a relatively small problem, the use of and harms associated with synthetic cannabinoid receptor agonists (SCRAs) are a particular and growing concern, especially in prisons and among the street homeless population.

Other drugs

The inquiry also heard about rises in deaths associated with:

- MDMA/ecstasy, below peaks in the 2000s but rapidly escalating since 2010
- Cocaine and other stimulants, with all mentions of cocaine up nearly 80% in two years and cocaine-only mentions nearly doubled from 2012 to 2014
- Tramadol and other prescription and over-the-counter opioids

Processes for investigating drug-related deaths

Drug death reviews

Local learning from deaths and from near-misses and other incidents is vital to prevent future deaths (NTA 2011). Arrangements for reviewing drug deaths (and other incidents) vary widely from area to area. Some previously established and functional arrangements may have been lost during recent reconfigurations of health and social care.

Drug death investigations and toxicology

There is a general question to be asked about whether drug-related deaths are adequately investigated for the precise determination of the significance of all drugs in causing death. There may be a tendency to make assumptions about the cause of death in people known to be long-term drug users or on prescriptions for OST medication, and not to routinely comment on the presence of some common drugs.

Some drugs, such as pregabalin/gabapentin and buprenorphine, are not routinely tested for in post-mortem toxicology. It is too expensive to screen for all drugs in every death and it is uneconomic to produce validated methods for testing for drugs that are rarely seen (which currently covers a lot of NPS).

Physical and mental health

The inquiry reviewed a number of aspects of physical and mental ill-health likely to be contributing to premature death in people who use drugs.

General findings

The Global Burden of Disease shows that the highest concentration of drug misuse disorders are in the poorest parts of the country, areas categorised as deprivation level 1 (Newton 2015).

In recent years, deaths from heart disease have drastically reduced as treatments and other interventions have improved, while deaths from drug use disorders have increased by 113.5% (Newton 2015).

A recent local treatment service audit showed that 14 of 17 deaths were due to physical health problems (these were mainly complications from HIV and hepatitis C) while only one death had resulted from an overdose.

Physical ill health in people who use drugs is especially related to smoking and alcohol use.

Physical health is also dependent on diet. Some homeless centres are no longer able to provide free food, which may result in a significantly poorer diet for some clients.

Outreach in hostels could be a good way to engage with the drug using population outside treatment services.

Smoking and respiratory health

Around 20% of the general population smoke compared to up to 95% of people who use drugs. Illnesses caused by smoking are a significant cause of death in people who use or have used drugs, and smoking may increase susceptibility to opioid overdose. Smokers tested in one South London service had very low levels of blood oxygen (Sp02) (Jolley 2015)

Liver disease

End stage liver disease in the drug using population has increased greatly in recent years. Hepatitis C treatment is improving but is often still hard for current and former drug users to access.

Suicide

The overall suicide rate in the general population has increased in recent years and the number of drug poisoning suicides is steadily increasing. A high proportion of opioid misuse suicides are among individuals not in drug treatment.

Local considerations

Issues faced by local areas

In the five local events convened by PHE, local areas identified issues they face that could now or in the future make it more difficult to reduce drug-related deaths. Stakeholders identified the following:

- the need to maintain specialist drug services and the broader ‘wraparound’ services that can help protect and support vulnerable people

- lack of, or lack of ready access to, evidence for the effectiveness and cost-effectiveness of specific interventions to prevent DRDs
- contract transfers can lead to a loss of understanding of, and continuity with, high-risk clients
- difficulties engaging physical healthcare providers in providing high-quality and accessible general healthcare services to people who use drugs
- a depletion of former partnership working and systems for investigating deaths and near-misses
- unemployment and other benefits being withheld or delayed and then paid in a lump sum
- lack of consistent information between key system partners on prison release
- limited engagement and information from some coroners

What local areas said worked

In the five local events convened by PHE, local areas identified many interventions, activities and processes that could help in understanding and preventing drug-related deaths. These included:

- identifying people at risk by screening, for example:
  - multiple “did not attends” (DNAs)
  - previous overdoses
  - hospital admissions
  - routine liver function test (LFTs) for opiate/alcohol users
  - spirometry
- getting to those not in (or dropped out of) treatment through:
  - outreach
  - links with hostels, homelessness services, pharmacies, needle and syringe programmes, etc
  - joint working with mental health
  - following up missed appointments
- reviewing deaths and near misses
  - coroner involvement and cooperation
  - information from ambulance, A&E and hospital admissions
  - multi-agency group to review, including service users
  - standardise data collected in area and across region
  - sharing findings across borders/region
  - commissioner interest and regular reporting by provider
  - family involvement in reviews and/or receiving feedback on improvements (and asking questions of coroners that they might not answer from services)

- systems for assessing drug intelligence and then issuing alerts where appropriate
- work with GPs on prescribing of opioid pain medications, pregabalin and gabapentin, benzodiazepines and anti-depressants
- liaison and continuity of care
    - meet and greet from prison
    - arrangements for prescribing OST on release from prison
    - liaison nurse in hospital and pathways to treatment after A&E attendance or hospital admission
    - involving families around transition points
    - communication with GPs
- health interventions (provided on site at drug services or through effective pathways)
    - hepatitis C treatment
    - seasonal flu vaccine programme
    - diet/weight management
    - stop smoking interventions
- easy access to flexible/tailored overdose training and widespread naloxone provision, with local champions
- whole system approaches such as Making Every Adult Matter (MEAM) and Making Every Contact Count (MECC)
- joined up local systems for planning, commissioning and service provision, including with police and crime commissioners