Drug related deaths and hospital admissions in Lincolnshire

1. Drug related deaths

The Office for National Statistics defines drug related deaths where the underlying cause has been coded to:

- Mental and behaviour disorders due to drug use (excluding alcohol and tobacco) (ICD-10 F11-F16, F18-F19)

Or, a drug controlled under the Misuse of Drugs Act 1971 was mentioned on the death certificate and one of the following codes was recorded as cause of death:

- Accidental poisoning by drugs, medicaments and biological substances (X40-X44),
- Intentional self-poisoning by drugs, medicaments and biological substances (X60-X64),
- Poisoning by drugs, medicaments and biological substances, undetermined intent (Y10-Y14),
- Assault by drugs, medicaments and biological substances (X85)

Public Health England publishes local rates of drug related deaths; the results are shown in figure 1. In the most recent periods (2012-14 and 2013-15) the rates were below the national level: 2.8 per 100,000 population in Lincolnshire compared to 3.9 per 100,000 in England in 2013-15.

**Figure 1:** Deaths from drug misuse, directly age standardised rate (DSR) per 100,000 population, by calendar year of death registration (3 year pooled rates), all ages

The rate of 2.8 per 100,000 for Lincolnshire corresponded to 58 deaths over 3 year period. 2007-09 had the highest level of drug related mortality in Lincolnshire in any 3 year period since 2001: 80 deaths, which equated to the DSR of 4.1 per 100,000.

The Primary Care Mortality Database (PCMD) allows analysis of individual record level data. We were able to identify deaths with an underlying cause indicating use of drugs, but from available details it’s not always clear if the substance involved was one of the controlled drugs. By application


1 ONS, Deaths related to drug poisoning in England and Wales, 1993–2015
of this broader definition, 100 deaths of Lincolnshire residents were identified as related to drug use in the 3 year period between 2013 and 2015. The following can be stated based on analysis of those 100 records:

- There were nearly twice as many deaths of males than females (65:35),
- In males, the highest numbers were between ages 25 and 54 (especially 45-54); in females deaths were more evenly distributed across the age bands,
- Accidental poisoning was a cause of deaths in 72% of males and 57% of females,
- Among females, 31.4% of deaths were due to self-poisoning of undetermined intent (these would be included in the official suicide statistics)².

2. Drug related hospital admissions

National indicators for drug related admissions are available for 15-24 year olds. Hospital admissions are classed as drug related if a primary diagnosis falls into one of the following categories:

- Mental and behavioural disorders due to use of substances (other than alcohol) - ICD10 codes F11-F19,
- Poisoning by narcotics and psychodysleptics (hallucinogens) - ICD10 code T40,
- Toxic effect of organic solvents (T52),
- Toxic effect of other gases, fumes and vapours (T59),
- Poisoning by psychotropic drugs, not elsewhere classified - psychostimulants with abuse potential (T43.6),

Or, the main cause was recorded as:

- Poisoning by and exposure to substances, undetermined intent (narcotics and hallucinogens Y12, organic solvents and halogenated hydrocarbons – Y16, unspecified chemicals and noxious substances – Y19)³.

The results for Lincolnshire and England are presented in figure 2. Lincolnshire rates are slightly above national, but the differences are not considered to be statistically significant, which is illustrated by overlapping confidence intervals.

² Primary Care Mortality Database, Copyright © 2017, re-used with the permission of The Health & Social Care Information Centre. All Rights reserved
³ PHE, fingertips
Figure 2: Hospital admissions due to substance misuse, directly age standardized rate per 100,000 population aged 15-24, 3 year pooled rates by financial year

![Hospital admissions due to substance misuse, directly age standardized rate per 100,000 population aged 15-24, 3 year pooled rates by financial year](image)


The Lincolnshire admission rate between for the period 2013/14 to 2015/16 was 101.1 per 100,000 population aged 15-24 which equates to 258 drug related admissions over the 3 year period.

Analysis of Hospital Episode Statistics (HES) shows that there were 965 admissions of patients aged 15 and above due to the drug related categories listed at the beginning of chapter 2 over the 2013/16 period.

People aged 20-24 were most likely to be admitted (140 admissions in this age category, or 101 admissions per 100,000 population) and, generally speaking, the risk of drug related admission decreases with age. Figure 3 illustrates age specific rates for drug related hospital admissions in Lincolnshire.

Figure 3: Age specific rate of hospital admission due to drug related causes, 2013/14 – 2015/16, 3 year pooled data, Lincolnshire residents aged 15 and over

![Age specific rate of hospital admission due to drug related causes, 2013/14 – 2015/16, 3 year pooled data, Lincolnshire residents aged 15 and over](image)

Source: Hospital Episodes Statistics (HES) Copyright © 2017, re-used with the permission of The Health & Social Care Information Centre. All Rights reserved. ONS 2015 mid-year population estimates
In Lincolnshire, 57% of drug related admissions affected males, but the proportion varied between the age groups as shown in the figure 4.

**Figure 4:** Gender split of drug related hospital admissions in Lincolnshire by age group, 2013/14 – 2015/16

Poisoning by narcotics and psychodysleptics (hallucinogens) was the most common reason of admission across all the age group and was especially high proportion in women. Mental and behavioural disorders due to multiple drug use (the second most common diagnosis) were more prevalent in the younger age groups (18-44). Table 1 shows the 3 most occurring diagnosis in drug related hospital admissions broken down by gender.

**Table 1.** Drug related hospital admissions, by primary diagnosis and gender, 2013/14 – 2015/16, Lincolnshire

<table>
<thead>
<tr>
<th>Primary diagnosis</th>
<th>Male</th>
<th>Male %</th>
<th>Female</th>
<th>Female %</th>
<th>Grand Total</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poisoning by narcotics and psychodysleptics [hallucinogens]</td>
<td>268</td>
<td>49%</td>
<td>325</td>
<td>78%</td>
<td>593</td>
<td>61%</td>
</tr>
<tr>
<td>Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances</td>
<td>83</td>
<td>15%</td>
<td>21</td>
<td>5%</td>
<td>104</td>
<td>11%</td>
</tr>
<tr>
<td>Poisoning by psychotropic drugs, not elsewhere classified - psychostimulants with abuse potential</td>
<td>58</td>
<td>11%</td>
<td>19</td>
<td>5%</td>
<td>77</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>138</td>
<td>25%</td>
<td>52</td>
<td>12%</td>
<td>191</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>547</td>
<td>100%</td>
<td>417</td>
<td>100%</td>
<td><strong>965</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Drug related hospital admissions affected 852 individual patients over the 3 year period. Multiple admissions were not common. 86 out if 852 patients (10.1%) had 2 or more admissions during the examined period; 16 individuals had 3 or more admissions.

Admission rates were calculated for small geographical areas (LSOA) to see the distribution of admissions across the county. Directly age standardised rates were used to account for differences in the age structure of the population of the areas. Additionally, considering that the annual admission
numbers can be small at LSOA levels 5 years' worth of data was used to strengthen significance of the findings. The map in figure 5 shows the results by LSOA. The areas found to have the highest rate of drug related hospital admissions are marked dark red. The highest rates were observed in some urban areas and along the coast, which corresponds to where the most deprived areas of Lincolnshire are located.

**Figure 5:** Drug related hospital admissions by LSOA of patient's residence, DSR per 100,000 population, 5 year data 2011/12 – 2015/16

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To further investigate the apparent link between drug related admissions and deprivation, we have grouped LSOAs according to the decile of ranked income deprivation that they fall into. The income domain of 2015 Indices of Multiple Deprivation was used for this purpose. Figure 6 shows that the risk of the drug related hospital admissions in Lincolnshire increases in line with income deprivation. Areas classed as falling within the 10% most deprived in England had 3 times higher admissions rates than those falling within the 10% least deprived, and were nearly twice as high as the Lincolnshire average.

**Figure 6**: Drug related hospital admissions by income deprivation (IMD 2015), DSR per 100,000 population, Lincolnshire residents, and financial years 2011/12 to 2015/16

![Graph showing drug related hospital admissions by income deprivation](image)

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3. **Drug related A&E attendances**

Drug related A&E attendance is defined by diagnostic code 143 – 'Poisoning/overdose controlled drug'. During the 3 year period covering financial years 2013/14 to 2015/16, Lincolnshire residents presented at A&E departments 494 times with controlled drug poisoning. People in their 20's were most likely to attend. In general, a risk of drug related attendances decreases with age. However, there was a small spike in the attendances in people aged 50-54 as shown in figure 7.
Figure 7: Drug related A&E attendances, Lincolnshire residents age 15 and over, 2013/14 – 2015/16, age specific rates per 100,000 population

Males were more likely to attend A&E with drug related issues (63% of attendees were male). Multiple attendances were not common in the examined period. There were 463 individuals attending A&E with drug related issues, 23 attended 2 or more times (5%).

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