

# National Drug-Related Deaths Index

## 2008 – 2017 Data

### Introduction

This bulletin presents figures from the National Drug-Related Deaths Index (NDRDI) on deaths due to poisoning (overdose) by alcohol and/or other drugs, and deaths among people who use drugs (non-poisoning), for the period 2008–2017.

### Overview

In the ten-year period 2008–2017, there were **3,715 (54%) poisoning deaths**. Poisonings (overdoses) are deaths in the general population that are due to the toxic effect of one or more drug(s) including alcohol.

Also, in this period, there were **3,218 (46%) non-poisoning deaths**. Non-poisonings are deaths among people who use drugs that are not due to poisoning.

### Poisoning deaths in 2017

The annual number of poisoning deaths increased by 2%, from 368 in 2016 to 376 in 2017:

- The median age for poisoning deaths in 2017 was 43 years.
- Seventy per cent were men.
- More than half (58%) of poisoning deaths involved **polydrugs**, with an average of four different drugs involved.
- Benzodiazepines were the most common prescribable drug group implicated in polydrug deaths.

**Alcohol** was implicated in 125 (33%) of deaths:

- Alcohol poisoning deaths decreased by 9%, from 2016 (138) to 2017 (125).
- Alcohol was the most common individual drug implicated in poisoning deaths.

- Alcohol alone was responsible for 16% (61) of all poisoning deaths in 2017, similar to 2016.

The majority of deaths involved **prescribable drugs** which were implicated in 67% of poisoning deaths in 2017:

- Methadone was the most common single prescribable drug; implicated in 25% (95) of poisonings.
- Diazepam (a benzodiazepine) was implicated in 24% (90) of poisonings.
- Alprazolam (a benzodiazepine) was implicated in 63 poisoning deaths in 2017, a rise of 34%, from 47 deaths in 2016.

The number of deaths involving **illicit drugs** also increased:

- Cocaine poisoning deaths increased from 42 in 2016 to 53 in 2017, an increase of 26%.
- MDMA poisoning deaths increased from 8 in 2016 to 14 in 2017, an increase of 75%.
- Heroin poisoning deaths increased slightly from 74 deaths in 2016 to 77 deaths in 2017.

### Non-poisoning deaths in 2017

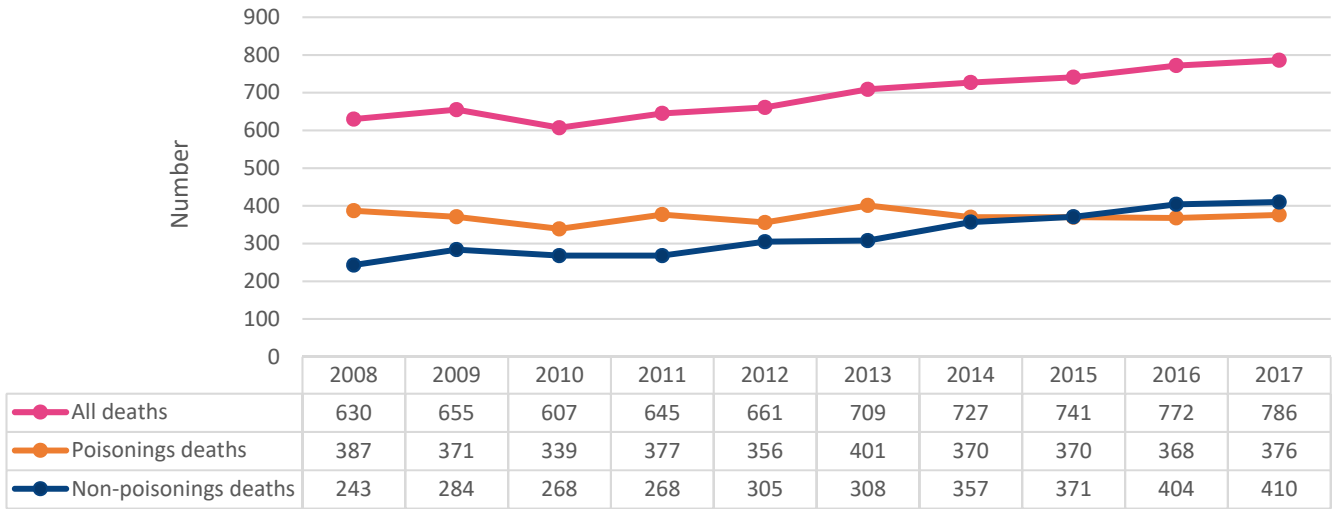
The number of non-poisoning deaths increased slightly from 404 in 2016 to 410 in 2017. The main causes of non-poisoning deaths were hanging (114, 28%) and cardiac events (56, 14%):

- Seventy-six per cent were men.
- Deaths due to hanging increased by 16% from 98 in 2016 to 114 in 2017.
- Of those who died due to hanging, 63% had a history of mental health problems.

## Trends 2008 to 2017

The 2017 figures (Table 1) are likely to be revised upwards when new data become available from closed inquest files. Over the reporting period, from 2008 to 2017 poisoning deaths have fluctuated.

In 2017, there was the first increase in poisoning deaths reported since 2013. Non-poisoning deaths increased year-on-year since 2011 (Figure 1).



**Figure 1: NDRDI deaths, 2008 to 2017 (N = 6,933)**

The annual number of **poisoning** deaths increased by 2%, from 368 in 2016 to 376 in 2017. The majority of poisoning deaths were among men (70%) (Table 1).

Of note, the median age for poisoning deaths has increased from 38 years of age in 2008 to 43 years of age in 2017 (Table 1).

**Table 1: Number of poisoning deaths, by year, NDRDI 2008 to 2017 (N = 3,715)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Poisonings (3,715)	387	371	339	377	356	401	370	370	368	376
<i>Poisonings among men</i>	274	253	251	274	264	273	267	243	249	263
<i>Poisonings among women</i>	113	118	88	103	92	128	103	127	119	113
Median age all poisoning deaths	38	38	40	39	40	41	39	41	43	43

The majority of **non-poisoning** deaths for each year were among men. In 2017, 76% of non-poisoning deaths were among men, however, non-poisoning deaths among women have increased at a higher rate over the reporting period. The number of non-poisoning deaths among

women have risen from 46 deaths in 2008, to 98 deaths in 2017, an increase of 113%. The median age for both medical and traumatic deaths has increased over the reporting period (Table 2).

**Table 2: Number of non-poisoning deaths, by year, NDRDI 2008 to 2017 (N = 3,218)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Non-poisonings (3,218)	243	284	268	268	305	308	357	371	404	410
<i>Non-poisonings among men</i>	197	212	207	218	234	240	282	292	325	312
<i>Non-poisonings among women</i>	46	72	61	50	71	68	75	79	79	98
Medical deaths	128	145	141	138	150	166	172	198	216	214
Trauma deaths	115	139	127	130	155	142	185	173	188	196
Median age medical	42	40	43	44	46	47	47	49	46	49
Median age trauma	28	30	31	30	31	33	33	34	33	35

## Deaths among people who were injecting drugs at the time of the incident that led to their death

People who were injecting at the time of the incident that led to their death represented 4% of all NDRDI deaths in 2017 (Table 3). Of these deaths:

- 79% were men.
- 97% were poisoning deaths.
- 41% died in Dublin City.
- 94% of the poisoning deaths involved opioids.
- 24% had a reported history of a blood borne virus (BBV) (hepatitis A/B/C or HIV).

Almost 1 in 10 (33, 9%) of poisoning deaths in 2017 were among people known to be injecting at the time of the incident that led to their death. In 2017, of those who injected drugs and died of a poisoning death which involved opioids (n=32, Table 4):

- 41% were not alone at the time of the incident that led to their death.
- 16% injected in a public place.
- 19% involved a single opioid drug.

**Table 3: Individual deaths among people who were injecting at the time of the incident that led to their death, NDRDI 2008 to 2017 (N = 502)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>‡</sup>	2017
All NDRDI deaths	630	655	607	645	661	709	727	741	772	786
Known to be injecting at time of death (% of all deaths)	<b>67</b> (10.6)	<b>69</b> (10.5)	<b>50</b> (8.2)	<b>47</b> (7.3)	<b>38</b> (5.7)	<b>49</b> (6.9)	<b>57</b> (7.8)	<b>56</b> (7.6)	<b>35</b> (4.5)	<b>34</b> (4.3)
<b>All injector deaths</b>	<b>67</b>	<b>69</b>	<b>50</b>	<b>47</b>	<b>38</b>	<b>49</b>	<b>57</b>	<b>56</b>	<b>35</b>	<b>34</b>
<i>Men</i>	47	58	45	41	33	42	50	51	30	27
<i>Women</i>	20	11	5	6	5	7	7	5	~	7
<b>Place of incident*</b>										
Dublin City	*	*	*	*	21	28	29	29	23	14
Outside of Dublin City	*	*	*	*	17	21	28	27	12	20
<b>Type of death</b>										
Poisoning	54	56	44	42	35	47	53	49	32	33
Non-poisoning	13	13	6	5	~	~	~	7	~	~
<i>Reported history of BBVs (% of all deaths)</i>	23 (34.3)	28 (40.6)	9 (18.0)	8 (17.0)	15 (39.5)	9 (18.4)	12 (21.1)	13 (23.2)	13 (37.1)	8 (23.5)

~ Less than five deaths. \*NDRDI commenced collecting data on place of incident that led to death from 2012 onwards.

<sup>‡</sup> HSE commenced naloxone pilot project August 2016.

**Table 4: Individual poisoning deaths among people who were injecting at the time of the incident that led to their death, which involved opioids, NDRDI 2008 to 2017 (N = 445)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>‡</sup>	2017
<b>All poisoning deaths</b>	<b>387</b>	<b>371</b>	<b>339</b>	<b>377</b>	<b>356</b>	<b>401</b>	<b>370</b>	<b>370</b>	<b>368</b>	<b>376</b>
Poisoning deaths involving injectors (% of all poisoning deaths)	54 (14.0)	56 (15.1)	44 (13.0)	42 (11.1)	35 (9.8)	47 (11.7)	53 (14.3)	49 (13.2)	32 (8.7)	33 (8.8)
<b>Poisoning deaths among injectors involving opioids (individual deaths)</b>	<b>51</b>	<b>54</b>	<b>41</b>	<b>39</b>	<b>32</b>	<b>46</b>	<b>51</b>	<b>46</b>	<b>30</b>	<b>32</b>
<b>of whom:</b>										
deceased was not alone	28	32	20	17	18	17	25	19	13	13
deceased was in a public place	7	12	8	5	5	7	18	9	9	5
death was caused by a single opioid drug	13	22	20	12	6	15	14	8	10	6

<sup>‡</sup> HSE commenced naloxone pilot project August 2016.

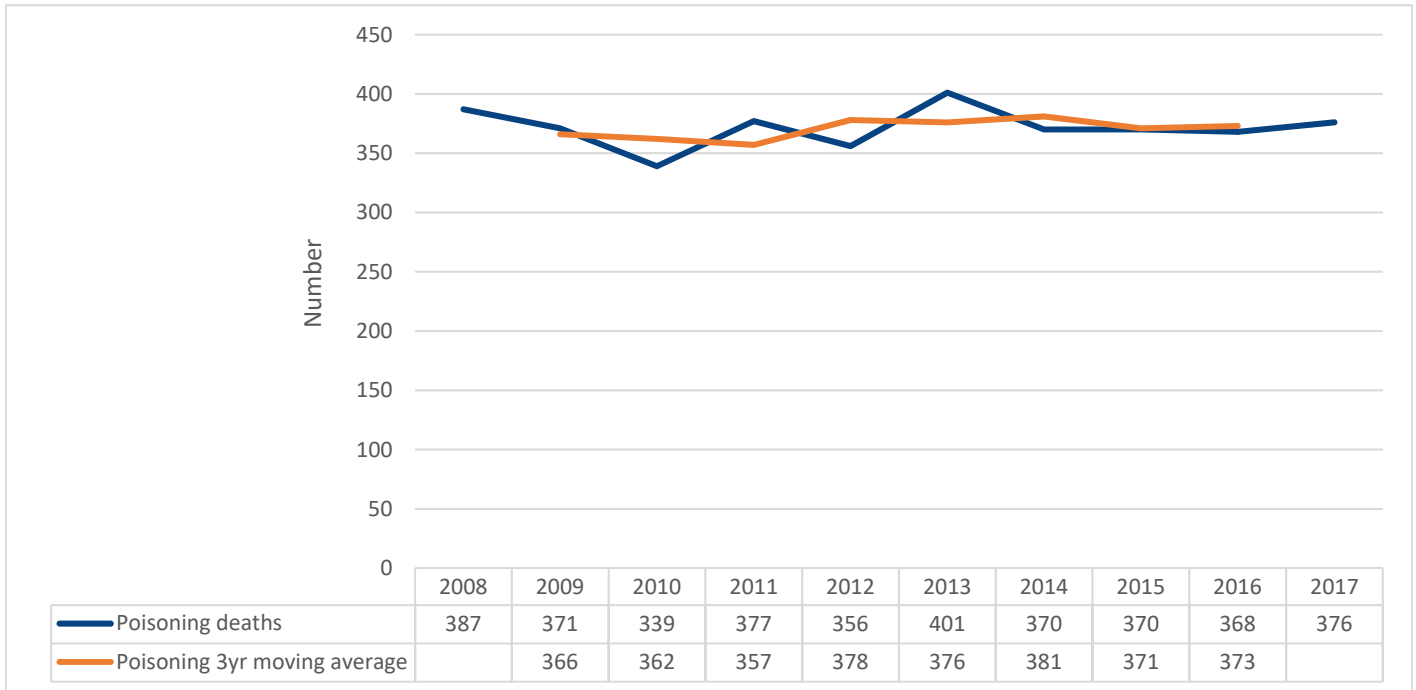
## Poisoning deaths in 2017

The annual number of poisoning deaths increased slightly from 368 in 2016 to 376 in 2017 (Table 1). Men account for the majority of deaths in each year since 2008; 70% of all poisoning deaths in 2017 were men. The median age of those who died in 2017 was 43 years, similar to 2016.

Over the reporting period, the number of poisoning deaths among men has decreased slightly from 274 deaths in 2008 to 263 deaths in 2017 (Table 1). However,

poisoning deaths among women during the same period have not decreased, but stabilised.

As the number of deaths fluctuate year-on-year, Figure 2 includes the three-year moving averages. These are likely to provide a better guide to the long-term trend than the change between any two individual years. From 2008 to 2017 the average number of deaths has plateaued (Figure 2).



**Figure 2: Poisoning deaths, three year moving averages, NDRDI 2008 to 2017 (N = 3,715)**

**Opioids** were the main drug group implicated in poisoning deaths in Ireland in 2017 (Table 6):

- Methadone was implicated in a quarter (95, 25%) of poisonings (Table 5).
- Number of deaths where heroin was implicated increased from 74 in 2016 to 77 in 2017.
- Fentanyl was implicated in 7 poisoning deaths, similar to the previous two years.

**Prescribable drugs** (which include over-the-counter medications) were implicated in the majority of poisoning deaths in 2017. Table 5 shows the most common **individual drugs** implicated in poisoning deaths, while Table 6 shows the most common **drug groups** implicated in poisoning deaths:

- Benzodiazepines continue to be the most common **prescribable drug group** implicated in poisoning deaths.
- Methadone was the most common individual prescribable drug, implicated in 95 (25%) poisoning deaths.
- Alprazolam poisoning deaths have risen by 34% between 2016 and 2017, from 47 to 63.

- Pregabalin poisoning deaths dropped from 66 in 2016 to 45 in 2017, however overall there has been an increase of 221% from 14 deaths in 2013 to 45 in 2017.
- Individual deaths where fentanyl was implicated have remained similar between 2016 and 2017.

Overall, the number of deaths where **illicit** drugs were implicated increased in 2017 (Tables 5 and 6):

- Cocaine poisoning deaths increased from 42 in 2016 to 53 in 2017, an increase of 26%.
- MDMA poisoning deaths increased by 75% from 8 in 2016 to 14 in 2017. Half of these 14 deaths in 2017 were due to MDMA alone.
- Heroin poisoning deaths increased from 74 deaths in 2016 to 77 deaths in 2017.

**Alcohol** was the single most common drug implicated over the reporting period. It was implicated in 33% of all poisoning deaths in 2017 (Table 5 and 6):

- The number of deaths involving alcohol has decreased by 9% from 138 in 2016 to 125 in 2017.
- Alcohol alone was responsible for 16% (61) of all poisoning deaths in 2017.

**Table 5: Individual deaths and occurrence of specific drugs in poisoning deaths NDRDI 2008 to 2017 (N = 3,715)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>‡</sup>	2017
All poisoning deaths*	387	371	339	377	356	401	370	370	368	376
Alcohol	157	143	151	142	129	143	121	113	138	125
Methadone	80	70	60	116	87	94	105	90	105	95
Diazepam	65	81	68	133	92	113	121	107	99	90
Heroin	91	114	72	64	64	88	97	84	74	77
Alprazolam	~	~	12	32	17	45	47	47	47	63
Cocaine	61	53	21	24	26	32	42	46	42	53
Pregabalin	0	~	~	~	~	14	27	50	66	45
Zopiclone	10	12	18	22	23	52	73	64	64	42
Flurazepam	20	25	27	50	29	42	36	35	43	34
MDMA	7	~	~	11	12	14	15	8	8	14
Quetiapine	~	~	~	13	10	12	18	20	19	12
Amitriptyline	21	13	9	14	15	24	20	26	27	9
Citalopram	20	20	20	32	16	23	21	21	22	9
Fentanyl	0	~	0	~	~	~	~	7	7	7
Etizolam <sup>†</sup>	0	0	0	0	0	0	~	7	6	5

\*This is a multi-response table taking account of up to six drugs. Therefore, numbers in columns will not add up to totals shown, as individual cases may have more than one drug implicated in their death.

~ Less than five deaths.

<sup>†</sup> Etizolam is considered a novel psychoactive substance in European publications.

<sup>‡</sup> HSE commenced naloxone pilot project August 2016.

## Multi-response analysis

The majority (58%) of poisoning deaths had more than one drug implicated, for example alcohol along with diazepam and methadone, thus Table 5 and Table 6 present a multi-response analysis which counts all occurrences of drugs implicated.

Therefore, individuals who died due to alcohol along with diazepam and methadone, are counted in the alcohol figures but are also counted in the diazepam figures and in the methadone figures.

**Table 6: Multi-response: Occurrence of specific drug groups in poisoning deaths NDRDI 2008 to 2017 (N = 3,715)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>‡</sup>	2017
<b>Opioids<sup>†</sup> – Individual deaths</b>	190	199	171	213	182	207	214	217	205	198
≥ 2 in individual deaths	28	37	17	45	39	46	46	43	44	42
<b>Benzodiazepines– Individual deaths</b>	103	114	103	170	128	163	164	148	149	139
≥ 2 in individual deaths	18	22	24	70	41	62	62	64	71	70
<b>Alcohol</b>	157	143	151	143	129	143	121	114	138	125
<b>Antidepressants– Individual deaths</b>	76	59	61	86	79	100	97	91	101	66
≥ 2 in individual deaths	10	5	5	11	10	21	25	14	15	12
<b>Other prescription meds<sup>§</sup>– Individual deaths</b>	55	45	62	72	78	113	144	146	150	121
≥ 2 in individual deaths	6	8	14	15	23	25	39	47	55	41
<b>Stimulants<sup>¶</sup> (excluding NPS) – Individual deaths</b>	66	53	21	30	34	40	48	51	47	65
≥ 2 in individual deaths	~	~	~	5	~	6	9	~	~	~
<b>Non-opioid analgesics – Individual deaths</b>	18	15	15	20	21	32	31	26	35	40
≥ 2 in individual deaths	0	~	0	~	~	0	~	0	~	~
<b>New Psychoactive substances (NPS) (including Etizolam)- Individual deaths</b>	0	5	6	5	7	17	15	15	7	5
≥ 2 in individual deaths	0	0	0	~	~	10	7	~	0	0
<b>Others/Unknown<sup>‡</sup>– Individual deaths</b>	27	37	28	26	25	28	22	24	14	19
≥ 2 in individual deaths	~	6	0	0	0	~	~	0	0	~

\*This is a multi-response table taking account of up to six drugs. Therefore, numbers in columns will not add up to totals shown, as individual cases may have more than one drug implicated in their death.

<sup>†</sup> Includes heroin; methadone; morphine; codeine; unspecified opioid-type drug; other opioid analgesics.

<sup>§</sup> Includes non-benzodiazepine sedatives (e.g. zopiclone); anti-psychotic; antiepileptic (e.g. pregabalin); cardiac and other prescription meds

<sup>¶</sup> Includes cocaine and MDMA.

<sup>‡</sup> includes solvents; insecticides; herbicides; other amphetamines; hallucinogens and other chemicals.

~ Less than five deaths.

<sup>‡</sup> HSE commenced naloxone pilot project August 2016.

## Polydrug poisonings

The majority (58%) of poisoning deaths in 2017 involved **polydrugs**. The percentage of deaths due to polydrug poisonings rose from 50% (192) in 2008 to 58% (218) in 2017 (Figure 3). Polydrug use is a significant risk factor for fatal overdose (Table 7). In 2017:

- 51% (64) of deaths where alcohol was implicated involved other drugs, mainly opioids.
- 89% (85) of deaths where methadone was implicated involved other drugs, mainly benzodiazepines.

- All deaths where **diazepam** was implicated (90) involved other drugs, mainly opioids.
- 86% (66) of deaths where **heroin** was implicated involved other drugs, mainly benzodiazepines.
- All deaths where **alprazolam** (63) was implicated involved other drugs, mainly opioids.

The number of drugs involved in each poisoning death has also risen over the period. In 2008, 3% (12) of all deaths had four or more drugs involved in poisoning deaths, however this increased to 18% (67) in 2017.

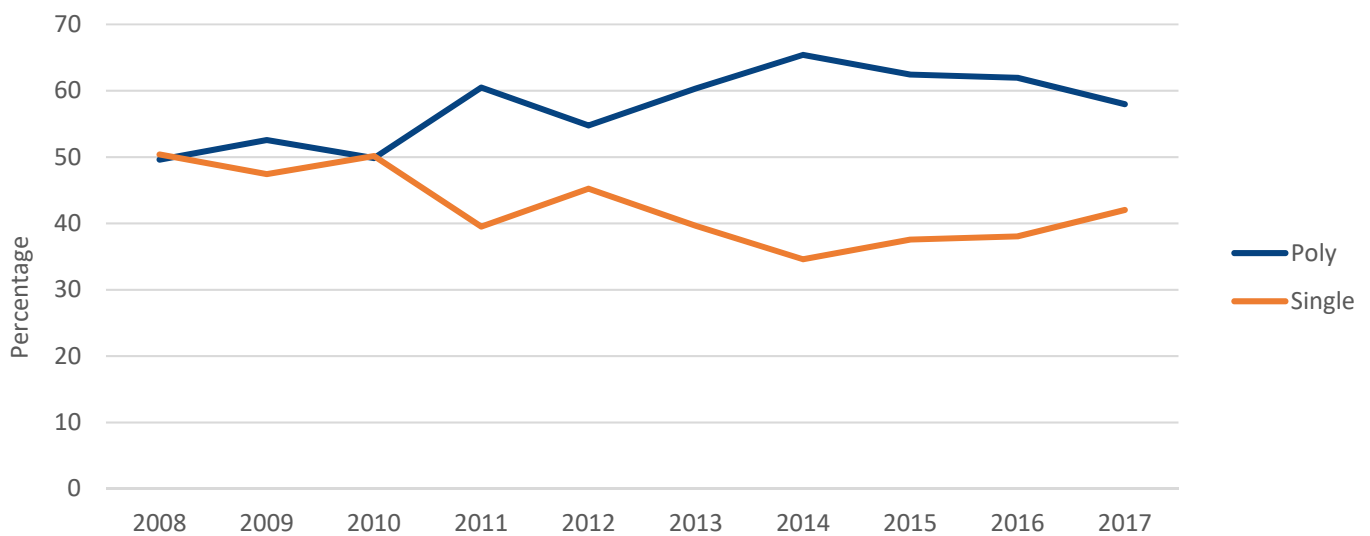


Figure 3: Evolution of polydrug poisonings among all poisoning deaths, NDRDI 2008 to 2017 (N = 3,715)

Table 7: Multi-response: combinations of main drugs that were implicated along with alcohol, methadone, diazepam and heroin, NDRDI 2017

	Alcohol	Methadone	Diazepam	Heroin
<b>Polydrug poisoning deaths</b>	N = 125	N = 95	N = 90	N = 77
Alcohol		11	16	17
Methadone	11		47	23
Diazepam	16	47		36
Heroin	17	23	36	
Alprazolam	9	42	36	29
Cocaine	8	23	23	17
Zopiclone	6	22	19	11
Pregabalin	8	21	20	8
Flurazepam	8	21	20	7
Olanzapine	~	6	7	~
Citalopram	0	~	~	~
Amitriptyline	~	~	~	0
Quetiapine	~	~	~	~
MDMA	~	~	~	~

## Non-poisoning deaths

Non-poisoning deaths are deaths among people with a history of drug dependency or non-dependent problematic use of drugs whether or not the use of the drug had a direct impact on the cause of death. In 2017, 410 non-poisoning deaths were reported, a continuation of the annual increase and also the trend of higher numbers of non-poisoning deaths compared to poisoning deaths since 2015.

These deaths are categorised as being due to either trauma (196) or to medical causes (214). In 2017 the majority of trauma deaths (155, 79%) and medical deaths (157, 73%), were among men.

In 2017, the main causes of non-poisoning deaths were hanging [trauma] (114, 28%) and cardiac events [medical] (56, 14%) (Figure 4). Deaths due to liver disease have increased from 12 deaths in 2008 to 33 deaths in 2017.

A younger cohort died from traumatic causes (median age of 35 years) in comparison to deaths due to medical causes (median age of 49 years) (Table 2). The median age for deaths due to medical causes has increased from 42 years in 2008 to 49 years in 2017, which is most likely indicating an ageing cohort of drug users in Ireland.

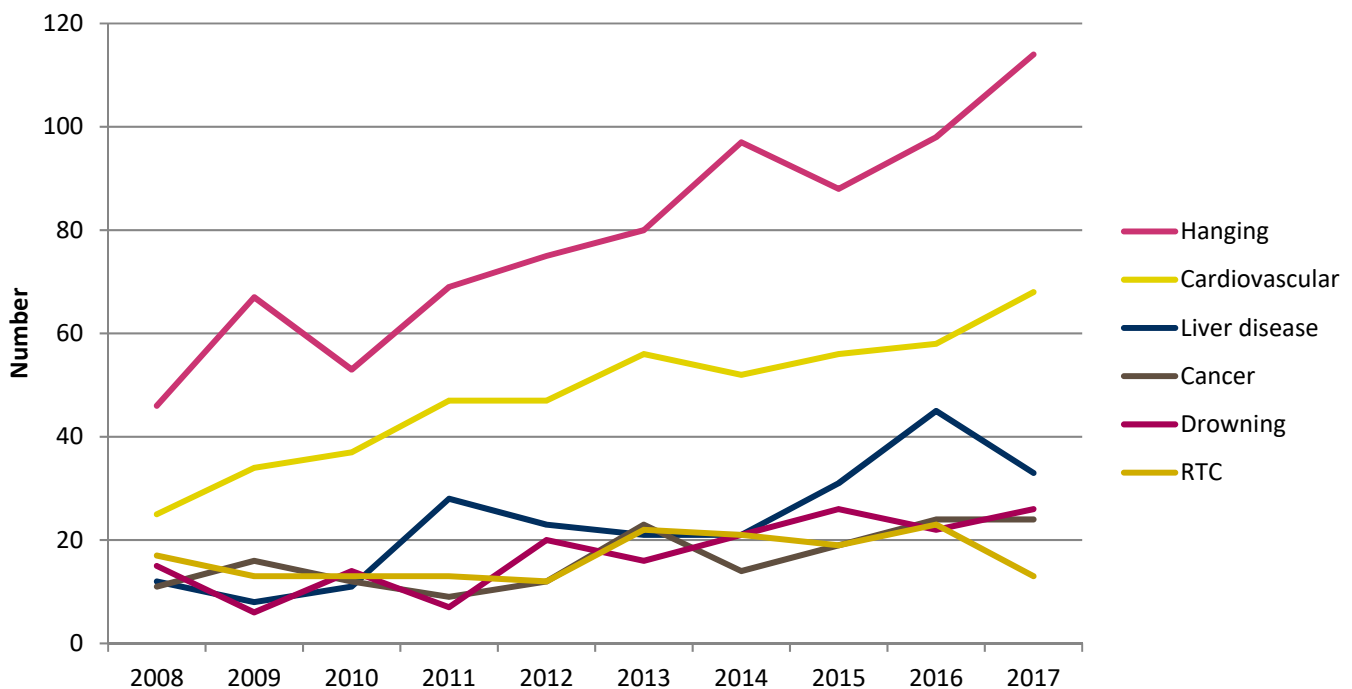


Figure 4: Non-poisoning deaths: top six main causes, NDRDI 2008 to 2017.

### Traumatic deaths as a result of hanging in 2017

Deaths due to **hanging** increased by 16% from 98 deaths in 2016 to 114 in 2017, driven mainly by a 56% increase in deaths due to hanging among women, from 16 deaths in 2016 to 25 deaths in 2017. Deaths due to hanging accounted for 28% of all non-poisoning deaths in 2017.

- The majority were men (89, 78%).
- 6 in 10 (63%) had a history of mental health problems.
- Cannabis followed by cocaine were the most common drugs used by those who died as a result of hanging.

### References

- This document may be cited as: Health Research Board (2019) National Drug-Related Deaths Index 2008 to 2017 data. Available at: <http://www.drugsandalcohol.ie/31275> and at [www.hrb.ie/publications](http://www.hrb.ie/publications).
- More detailed information on the methodology can be found in previously published HRB Trends Series papers - <https://www.hrb.ie/data-collections-evidence/alcohol-and-drug-deaths/publications/publications/3/>

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