

The DUMP campaign

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Research carried out over the last 10 years has shown that suicide is preventable; from the days when very little was known about suicidal behaviour, there now exists a considerable body of knowledge on suicide trends in Ireland and throughout Europe (WHO 2004). The National Task Force on Suicide (1995-1998) concluded with the following recommendations on suicide prevention strategies:

1. Universal strategies (population education, including public mental health literacy and restricting access to means);
2. Selective strategies (targeting selective groups, i.e. young men, homeless and the elderly and ensuring the provision of crisis services); and
3. Indicated strategies (active case management of high-risk groups).

Methods of self-harm

National Suicide Research Foundation (NSRF) data shows that drug overdose is the primary method used in deliberate self-harm in this country, representing almost 70 per cent of self-harm incidents in Ireland in 2005. According to the research, the most common drugs used in deliberate self-harm are minor and major tranquilisers, analgesics (including paracetamol) and anti-depressants.

A steering committee of the then South Western Area Health Board (SWAHB), comprising of Mental Health, Addiction and the then Eastern Health Shared Services Waste Management staff, identified the Disposal of Unused Medication Properly (DUMP) project as a potential way of restricting access to means for suicide, a universal strategy, and deliberate self-harm, accidental poisoning in children and preventing environmental pollution. The project has since been templated in other HSE areas, i.e. the Midlands and the Cork/Kerry region.

DUMP campaign

From an initial group of six pharmacies in 2002, now every pharmacy in the area is a part of the DUMP initiative, which urges consumers to 'Dispose of Unused Medication Properly' and attempts to achieve this by encouraging patients to return unused medicines to their local pharmacy. The quantity of pharmaceuticals collected in the pilot for six weeks was 108kg. This rose significantly to 4.47 tonnes for the first full year of collection (2004) when all pharmacies were involved. Year on year, the quantity being collected has increased significantly (see Graph 1), with total of 12 tonnes collected in 2007.

While other possible benefits of restricted access to drugs include decreased accidental poisoning of children and a reduction in environmental pollution, the main focus of

the DUMP campaign has always been the prevention of suicide and deliberate self-harm. As such, DUMP has been included in the recommendations of the Irish National Suicide Strategy, Reach Out – National Strategy on Suicide Prevention, 2005-2014.

In the study undertaken, over 70 per cent of returns were due to either "medicine cabinet clearout" (36.8 per cent) or because the medicines were "unused/unwanted" (34.3 per cent) (see Table 1).

Table 1. Reasons for returns of medicines to community pharmacy.

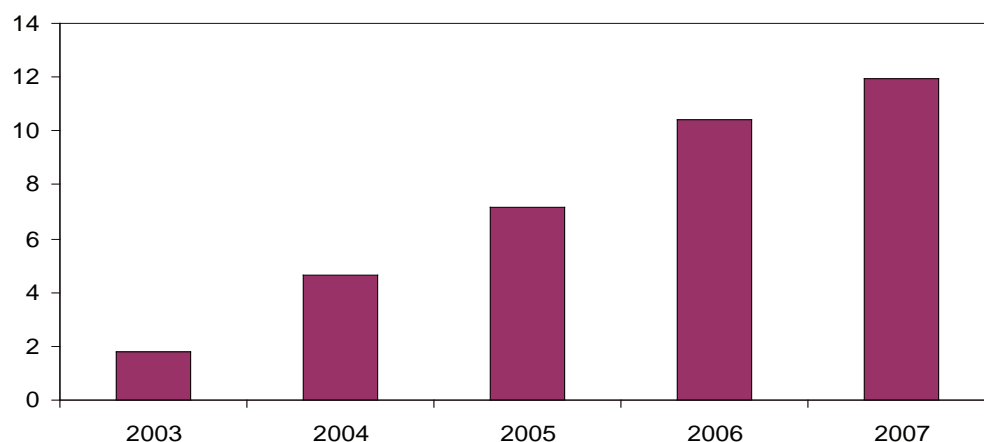
Reason for Return	%
Therapy changed	12.8
Medicine cabinet clear-out	36.8
Patient deceased	14.2
Unused/unwanted	34.3
Missing (no result given)	1.1

The high return rates for these reasons for return suggest the value of DUMP as a measure to combat deliberate self-harm, especially given its impulsive nature. The demographics of those making returns of unused medicines were as follows (see Table 2), with a 60:40, female to male ratio of returns. The age group which returned most medicines was the 45-64 years age group which proved to be statistically significant ($p < 0.01$).

Table 2. The percentage returns per patient grouping.

Medicines returned by:	%
Patient	55.9
Family member	41.3
Medical professional	2.8
Missing (no result given)	1.1

High levels of returns also demonstrate the public demand for this project; during the evaluation phase over a six-week period on a stratified sample of 26 pharmacies, there were, in total, 1,212 items returned to the 26 pharmacies over the six weeks of collection. This means



Graph 1. The amount of unused and out-of-date medication returned from community pharmacies in the former South Western Area Health Board (SWAHB).

that averages of 46.6 items were returned per pharmacy over the six-week period. In turn, 7.8 items were returned per pharmacy per week.

Suicide and self-harm in Ireland

Deliberate self-harm is very often impulsive; even for near-fatal attempts, the decision may have been made only minutes beforehand. This impulsivity is an important characteristic of many of those who attempt suicide. Compounded with this, it has been found that alcohol and drug consumption probably increases the likelihood of impulsive acts.

Where deliberate self-harm is concerned, in 2003, based on hospital-treated cases, the rate of deliberate self-harm for women in Ireland was 241 per 100,000 and 177 per 100,000 for men. In 2004, the person-based age-standardised rate of deliberate self-harm for women and men was 233 and 170 per 100,000 respectively; both these figures represented a 4 per cent decrease from the 2003 figures. The female rate in 2004 was 37 per cent higher than the male rate, which was similar to the 36 per cent difference in 2003.

According to a 2004 NSRF report, while it is common for several drugs to be taken at the same time in an act of self-harm, minor tranquilisers, paracetamol and anti-depressant drugs were involved in 43, 31 and 25 per cent of deliberate overdoses, respectively. Paracetamol was used significantly more often by women (34 per cent) than by men (25 per cent).

Anatomical Therapeutic Chemical classification system

All of these agents belong to the N (Nervous system per ATC [Anatomical Therapeutic Chemical classification system] coding; see Table 3) class of drugs. The N02 group (analgesics) accounted for over 44 per cent of N returns, which is encouraging given the importance of paracetamol as an agent of deliberate self-harm. With regard to the type of drugs returned, the N class of drugs accounted for 27.3 per cent of total returns, representing almost 1.8 times the level of return of the next most common class (the C group [Cardiovascular] of drugs).

Table 3. The percentage returns in the N class of drugs per ATC (Anatomical Therapeutic Chemical classification system).

'N' category	Valid percentage
N01 (Local/general anaesthetics)	0.9
N02 (Analgesics)	44.8
N03 (Anti-epileptics)	8.8
N04 (Anti-Parkinsons drugs)	6.7
N05 (Psycholeptics)	22.7
N06 (Psychoanaleptics)	14.5
N07 (Anti-nervous system drugs)	1.5

Amongst the N group, the most commonly returned drugs were analgesics and psycholeptics (groups N02 and N05). Group N02 includes opioid analgesics, non-opioid analgesics and anti-migraine preparations (see Table 4).

Table 4. The percentage returns of each sub-class of N02 calculated with regard to total N02 returns.

N02 group	Drug type	% of N02 returns
AA	Opium alkaloids, e.g. morphine	44.0
AB	Phenylpyridine derivatives, e.g. fentanyl	0.7
AE	Oripavine derivatives, e.g. buprenorphine	0.7
AX	Other opioids, e.g. tramadol	15.3
BA	Salicylic acid and derivatives	2.7
BE	Anilides, e.g. paracetamol	34.7
CD	Anti-migraine preparations	2.0

A similar breakdown was then carried out for returns from the N05 group. Group N05 consists of psycholeptics and includes anti-psychotics. Table 5 shows how group N05 can be broken down, including only those parts of the sub-group from which returns were made during the study, and their percentage rate of return.

Table 5. The percentage returns of each sub-class of N05 calculated with regard to total N05 returns.

N05 group	Drug type	% of total N05 returns
AA	Anti-psychotics	11.4
AB	Phenothiazines with piperazine structure, e.g. fluphenazine, perphenazine	11.0
AH	Diazepines, e.g. olanzapine, quetiapine	5.5
AX	Other anti-psychotics	6.8
BA	Benzodiazepines	28.8
CD	Benzodiazepine derivatives, e.g. flurazepam, nitrazepam	11.0
CF	Benzodiazepine-related drugs, e.g. zopiclone, zolpidem	35.6

Given that groups AA, AB, AH and AX are anti-psychotics, while the remaining groups represent the benzodiazepines and related agents, anti-psychotics represented 24.7 per cent of these, with benzodiazepines accounting for 75.3 per cent of all N05 returns.

Another important group was N06, the psychoanaleptics, which includes anti-depressants such as selective serotonin reuptake inhibitors (SSRIs). Table 6 shows a breakdown of these returns.

Table 6. The percentage returns of each sub-class of N06 calculated with regard to total N06 returns.

N06 group	Valid percentage
N06A (anti-depressants)	87.5
N06B (psychostimulants)	8.3
N06D (anti-dementia drugs)	4.2

With regard to returned anti-depressants, non-selective monoamine reuptake inhibitors (e.g. amitriptyline) accounted for 23.8 per cent, SSRIs accounted for 64.3 per cent and other anti-depressants accounted for 11.9 per cent.

The drugs most commonly returned as part of the DUMP campaign were also those agents most frequently employed as agents of deliberate self-harm.

Cardiovascular agents

The second most commonly returned group of drugs, according to ATC classification, was the cardiovascular agents. These results were then broken down in a similar way to the nervous system group. Table 7 shows the types of these drugs most commonly returned.

Table 7. The percentage returns of each C group calculated with regard to total C group returns.

C group	Drug type	Valid percentage
C01	Cardiac therapy	10.7
C02	Anti-hypertensives	5.3
C03	Diuretics	16.6
C07	Beta-blockers	9.6
C08	Calcium channel blockers	13.4
C09	Agents acting on renin-angiotensin system	24.1
C10	Lipid-modifying drugs	20.3

Role of pharmaceuticals in suicide

Results of the study were also analysed with regard to the level of return of those agents often associated with suicide and deliberate self-harm. As previously stated, use of drugs as agents of self-harm is very common in Ireland. Detailed information on the types of drugs used in fatal overdose in this country is not currently available, and this is a major obstacle to analysis of the role of pharmaceuticals in suicide.

With regard to deliberate self-harm in Ireland, according to the NSRF's annual report for 2006-07, major tranquillisers (anti-psychotics) and minor tranquillisers (anxiolytics including benzodiazepines) were involved in 10 per cent and 42 per cent of all incidences of overdose, respectively. Analgesic drugs were also important agents of self-harm and were involved in 48 per cent of female and 38 per cent of male overdose incidents. Paracetamol was the single most important painkiller used, being involved

in some form in 30 per cent of overdose acts. Twenty-two per cent of all recorded incidents of overdose involved anti-depressants or mood stabilisers, with 13 per cent of patients using SSRIs as agents of deliberate self-harm. Other prescribed drugs were involved in 24 per cent of overdose incidents, which, as stated in the NSRF's report: "Reflects the wide range of drugs taken deliberately in acts of drug overdose."

Availability of drugs at home

These results can now be reviewed with regard to the level of return of these agents as part of the DUMP campaign. As shown in the results section, the N group of drugs accounted for 27.3 per cent of total returns, representing the drug group most commonly returned by patients. The minor and major tranquillisers, as named in the NSRF's report, include benzodiazepines and anti-psychotics, all of which belong to the N05 group of drugs, which accounted for 22.7 per cent of all N returns and were the second most commonly returned group of N drugs, exceeded only by analgesics.

Of these N05 returns, 75.3 per cent were benzodiazepines and similar agents, while 24.7 per cent were anti-psychotics. Of these drugs, benzos are more than four times more likely to be involved in overdose incidents, as well as being more than three times more likely to be returned by patients. This is significant in terms of the relative availability of these agents in people's homes. The higher level of return of N05B and N05C drugs suggests that these agents would be more commonly available in people's homes, and hence would be more likely to be used as agents of self-harm given the often impulsive nature of incidents of self-harm.

Meanwhile a similar rationale can be applied to the common use of analgesic drugs as agents of self-harm; they were involved in 48 per cent and 38 per cent of female and male overdose acts, respectively, according to the NSRF. Analgesics accounted for 44.8 per cent of all N returns, illustrating the high level of availability of these drugs in homes.

Of the analgesics returned, the most commonly returned group were opiates, accounting for 44 per cent - this is a high figure, which may have been influenced by the high level of use of these drugs in palliative care, giving rise to the return of drugs after a patient dies. The second most commonly returned analgesics were anilides (e.g. paracetamol), which accounted for 34.7 per cent of analgesic returns. This is in strong correlation with the involvement of paracetamol in 30 per cent of overdose acts.

A total of 22 per cent of all recorded incidents of overdose involved anti-depressants or mood stabilisers, with 13 per cent of patients using SSRIs as a means of self-harm by overdose. The group of interest here with regard to drug returns is the N06 group (psychoanaleptics) which accounted for 14.5 per cent of N returns. Of these, 87.5 per cent were anti-depressants. When these anti-depressants were further broken down into their respective groups, it was shown that 64.3 per cent were SSRIs. All of these results illustrate the fact that the drugs most commonly returned as part of the DUMP campaign are also those agents most frequently employed as agents of

Twenty-two per cent of all recorded incidents of overdose involved anti-depressants or mood stabilisers, with 13 per cent of patients using SSRIs as agents of deliberate self-harm.

deliberate self-harm.

As stated above, the wide range of agents described in the NSRF's report as "other prescribed drugs" accounted for 24 per cent of overdose incidents. This is borne out by the high level of returns of a diverse range of drugs as part of the DUMP campaign. While the N group of drugs were the agents most commonly returned, high levels of return were also seen from the Cardiovascular and Alimentary groups, reflecting the high level of prescribing of these agents, which would, in turn, lead to high levels of availability in homes.

Further analysis is currently being carried out according to the deprivation index of the area in which each pharmacy was located.

Key recommendations arising from the DUMP project

1. DUMP should be extended to all pharmacies in Ireland.
(Result: The project has been successfully templated in the former Midlands area and in the Cork/Kerry region.)
2. Links should be made with primary care teams.
3. More information leaflets should be developed for patients and relatives.
4. A review of GP prescribing and pharmacy dispensing practices of medicines should be undertaken.
5. Further examination should be carried out into the compliance of patients with medications and to investigate the reasons for unused medicines in a more formalised, quantitative and qualitative manner.
6. Promotion of discussion on medicine management with health agencies and healthcare professionals should be initiated.
7. There should be increased media promotion of the DUMP campaign.
8. The return form should be reviewed to increase and add value to the project's research.
(Result: MSc evaluation in conjunction with Dr M Henman, Department of Practice of Pharmacy, School Of Pharmacy, University of Dublin, and Dr D O'Driscoll, HSE DML, funded in a public-private partnership with the HSE and The 3Ts.)

