Back so soon: rapid re-presentations to the emergency department following intentional self-harm

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Abstract

Aim To describe the number, characteristics and management of patients who presented to an emergency department (ED) with intentional self-harm and then re-presented for any reason within 1 week, over a 1-year period.

Method A retrospective records review from one New Zealand ED over 12 months.

Results Of the 120 patients who attended the ED more than once with intentional self-harm, 48 re-presented on 73 occasions within 7 days of the index presentation. Of the re-presentations, 55% occurred within 1 day. Mental health assessments by emergency department staff were minimal; challenging incidents occurred in 40% of presentations; and there was an increase in the inpatient admission rate for second presentations.

Conclusion We identified a small group of patients who rapidly re-present to the ED following intentional self-harm. The reasons behind those re-presentations could include limited mental health assessments in ED and inadequate follow-up on discharge. System improvements in the ED including better collaboration with mental health services could improve how services address the needs of patients who present with intentional self-harm and reduce costs.

People who intentionally self-harm commonly present to emergency departments (EDs), with a sub-group re-presenting on multiple occasions. Intentional self-harm (ISH) is one of the strongest predictors of eventual suicide\(^1\) with repeat suicidal behaviour particularly suggestive of severe psychopathology.\(^2\)

In New Zealand almost half of those known to have made serious suicide attempts make a further fatal or non-fatal attempt within 5 years.\(^3\)

EDs have an important role in suicide prevention.\(^4,5\) The acute setting provides an opportunity to assess and treat this vulnerable group of patients.

Research on repeat ISH presentations to ED has focused on describing the population and their re-presentations.\(^6,7\) Usually studies measure time to re-presentation at intervals of up to 12 months,\(^8,9\) with intervals of 6 months\(^10\) and 1 month\(^11\) being used less often.

Investigations of ISH repetition within 12 months have shown that 10% returned to ED within 1 week\(^12\). Similar repetition rates (9%) within 1 week were found when examining the aftercare by GPs\(^13\).

Overcrowding in EDs has led to the investigation of general re-presentation rates to find ways to reduce the workload. Moore et al found that 60% of ED re-presentations...
happened within a week, with a quarter of these patients troubled by mental health issues.\textsuperscript{14}

Studies on “unscheduled returns” to ED within 72 hours have focused on physical presentation for complaints such as abdominal pain\textsuperscript{15} and discovered errors of prognosis, treatment and follow-up care\textsuperscript{16}. Neither of these studies examined unscheduled returns to ED following ISH.

The aim of our study was to examine ED re-presentations following ISH within 7 days of the index ED presentation, and to describe the clinical activities in ED associated with the management of this group.

**Method**

**Study design**—This study is a retrospective records review of ED presentations over a 12-month period. The study was approved by the Central Regional Ethics Committee.

**Setting**—The study was set in a New Zealand tertiary hospital serving a regional population of 900,000 people.

**Sample**—The records of 48 patients with 73 pairs of presentations, where the index presentation was for ISH and the second was for any reason, with both presentations occurring within a seven day period. The sampling method is illustrated in Figure 1. People who had 13 or more presentations within the 12-month period were excluded as they were considered to have a different profile.

**Figure 1. Sampling methodology**
Data—This was extracted from the ED clerical and clinical notes. Demographic data included gender, age, ethnicity, and past health history. Presentation data included date of presentations; presenting complaints; assessment by doctors and nurses; challenging incidences; mental health referral to and from ED; assessment by mental health services; ward admission and planned follow-up. Additional information about sequences of events and context were entered into a log book.

Procedure—In the year of the study 44,882 ED presentations were recorded; of these 6.5% were re-presentations. Hospital Information Services performed a systematic database search to capture all patients with a presenting problem related to overdose or mental health, situational crisis and lacerations. In total, 1985 patients presented to ED with ISH, with the majority presenting only once (n=1865). Preliminary inspection of the data showed that of 120 patients with multiple ISH presentations 56 had returned within 1 week. The 852 presentations of 120 patients made up 1.9% of the total ED presentations for that year. A sample of 48 patients with 73 presentation pairs was identified (Figure 1) representing 2.4% of the ISH population.

Determining a presentation pair was complex. Fifteen patients had 40 presentation pairs, with individuals having between two and six pairs. Seventeen pairs were linked, meaning a second presentation was also counted as an index presentation if the next time the person came to the ED was within 7 days. To be an index presentation required the documentation of ISH, defined as attempted suicide, self-harm and suicidal ideation (Table 1).

Table 1. Identification of presentation pairs

<table>
<thead>
<tr>
<th>No. of presentation pairs per patient</th>
<th>No. of patients</th>
<th>No. of re-presentations</th>
<th>No. of ISH presentations counted twice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>33</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>73</td>
<td>17</td>
</tr>
</tbody>
</table>

There was no one pattern to presentations and pairs. Of the nine patients who had two presentation pairs, seven patients’ presentation pairs were connected. Of the four patients who had three presentation pairs, two had three interconnecting presentation pairs within three and 12 days respectively, one had two out of the three pairs connected, and the fourth had all unconnected presentation pairs.

The patient with four presentation pairs had three connected pairs and one unconnected. The patient with six presentation pairs first two presentation pairs were unconnected; the second, third and fourth connected; and the fifth and sixth connected.

Analysis—The Statistical Program for Social Science (SPSS) Version 14 was used for analysis: (i) the characteristics of the two sets of presentations (i.e. index presentations for ISH, and second presentation) were summarised using simple descriptive statistics; and ii) inferential statistics were used to test for differences in assessment and management between first and second presentations.

Content analysis of log book entries was used to describe events between and during ED presentations.

Results

Of the 73 re-presentations by 48 people, more than half (55%) occurred within 24 hours of the index presentation. Re-presentations within one day included 9 (12%) on the same day and 31 (43%) the following day (Table 2). The mean interval between index presentation and re-presentation was 2.6 days (SD 2.2, with a median of 1 day).
Table 2. Days to re-presentation by number and frequency

<table>
<thead>
<tr>
<th>Days to re-presentation</th>
<th>Number of presentations (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0*</td>
<td>9 (12.3)</td>
</tr>
<tr>
<td>1</td>
<td>31 (42.5)</td>
</tr>
<tr>
<td>2</td>
<td>5 (6.8)</td>
</tr>
<tr>
<td>3</td>
<td>6 (8.2)</td>
</tr>
<tr>
<td>4</td>
<td>9 (12.3)</td>
</tr>
<tr>
<td>5</td>
<td>6 (8.2)</td>
</tr>
<tr>
<td>6</td>
<td>3 (4.1)</td>
</tr>
<tr>
<td>7</td>
<td>4 (5.5)</td>
</tr>
<tr>
<td>Total</td>
<td>73 (100)</td>
</tr>
</tbody>
</table>

*Same day

Demographic characteristics and clinical features of patients—Of the 48 patients, 56% were female. Age at the first of their paired presentations ranged from 14–51 years, with a mean of 29 years (SD 10.7). Patients most commonly identified as European (67%) and Māori (23%). At the patient’s first presentation a history of mental illness/personality disorder (96%) and/or ISH (65%) was commonly documented. Over a third of the sample (38%) had physical illness recorded in their past medical history. A number of patients had a documented background history of alcohol (42%) and drug (28%) use. A majority of patients (80%) presented to ED between two and four times for any cause in the year of observation.

Arrival information—The majority of index presentations (82%, n=60) included complaints of suicidal thoughts on arrival to ED, compared to only 62% (n=45) for second presentations. In nearly half of the presentation pairs (n=36), suicidal thoughts were among the presenting complaints for both visits. Harm sustained from ISH was more common for index presentations (n=47, 65%) than for second presentations (n=39, 53%) and consisted mostly of overdoses and lacerations (Table 3).

Physical presentation complaints for second presentations (n=18/25%) included non-ISH lacerations and foreign bodies; pain; drug and alcohol issues; seizures; pregnancy issues; anaemia/hypotension and sleep deprivation.

For approximately a quarter of presentations, patients had pre-arranged appointments with the Mental Health Crisis Team (MHCT) (n=16, 22% first; n=21, 29% second presentations) in ED. Where ED documentation was missing for expected patients, MHCT only involvement was assumed.
Table 3. Harm sustained from intentional self-harm type, both presentations

<table>
<thead>
<tr>
<th>Type of ISH</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Presentation n (%)</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Presentation n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdose</td>
<td>25 (34)</td>
<td>21 (29)</td>
</tr>
<tr>
<td>Laceration</td>
<td>12 (17)</td>
<td>8 (11)</td>
</tr>
<tr>
<td>Attempted hanging</td>
<td>2 (3)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Ingestion/insertion foreign body</td>
<td>4 (6)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Head injury</td>
<td>2 (3)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Stabbing self</td>
<td>1 (1)</td>
<td>0</td>
</tr>
<tr>
<td>Traffic</td>
<td>1 (1)</td>
<td>0</td>
</tr>
<tr>
<td>Gassing</td>
<td>0</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Jumping from a height</td>
<td>0</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Burn</td>
<td>0</td>
<td>1 (1)</td>
</tr>
<tr>
<td>No details recorded</td>
<td>1 (1)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>No harm sustained*</td>
<td>25 (34)</td>
<td>30 (41)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>73 (100%)</strong></td>
<td><strong>73 (100%)</strong></td>
</tr>
</tbody>
</table>

*Includes presentations for suicidal ideation. For second presentations it also includes physical reasons.

**Emergency department assessment and management**—Documentation of assessment and management by ED doctors and nurses was minimal (Box 1, Scenario 1). In general, nursing documentation consisted of a description of the whereabouts of the patient and stated service involvement. The number of nursing assessments of patients’ physical or mental state was higher for index (n=53, 73%) than for second (n=43, 59%) presentations (Fisher’s Exact, p=0.016).

In 13 pairs of presentations, no nursing assessments were documented. Mental health assessments by ED doctors were less common for second than for index presentations, decreasing from 55% (n=40) to 38% (n=28) (Fisher’s Exact 0.233). For 23 presentation pairs, no mental health assessments were done by ED doctors in either presentation.

**Box 1. Scenarios of events in ED**

**Scenario 1 – Triage assessment: Risk to self and others**
Person Y presented to ED with thoughts of killing his neighbour and suicidal thoughts. Y was assessed by the MHCT and sent home. He arrived back in ED 2 days later. The triage nurse’s documentation is ‘Expected by MHCT. Appears calm’ and allocated a Code 4*. MHCT was delayed for 3 hours. No further assessments were done until they arrived.

**Scenario 2 – Management of minor injuries**
Person X presented with a deep hand laceration that required plastic surgery. He stated that he worked in a professional occupation and got his hand caught in a grinder by accident. X stated that he had no past medical history. Previous admission notes showed that he had attended two days previously distressed and suicidal.

**Scenario 3 – Challenging incident**
Person N presented to ED with lacerations to her lower legs. While waiting in a cubicle, she tried to set light to herself. Person N required restraint and two security staff to ensure her safety.

*Patient should wait for medical assessment and treatment no longer than 60 minutes
In contrast, in 42 (58%) presentation pairs, physical assessments were performed by ED doctors at both index and second presentation. When managing complaints for physical issues, notes from previous intentional self-harm admissions to ED were not always consulted (Box 1, Scenario 2).

Challenging incidents such as those listed in Box 1 (Scenario 3) were common. More than half (54%) of presentation pairs involving 26 patients included a report of such incidents in at least one presentation. Police input was required for nearly a third of index presentations and a quarter of second presentations. The use of a watch/special providing one-on-one care or supervision of a patient increased from 19% for index to 26% for second presentations (Table 4).

### Table 4. Challenging incidents by presentation*

<table>
<thead>
<tr>
<th>Challenging incident</th>
<th>1st Presentation n (%)</th>
<th>2nd Presentation n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abusive behaviour</td>
<td>7 (10)</td>
<td>7 (10)</td>
</tr>
<tr>
<td>Mental Health Act</td>
<td>8 (11)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Police involved</td>
<td>22 (30)</td>
<td>18 (25)</td>
</tr>
<tr>
<td>Restraint use</td>
<td>7 (10)</td>
<td>6 (8)</td>
</tr>
<tr>
<td>Watch/special</td>
<td>14 (19)</td>
<td>19 (26)</td>
</tr>
<tr>
<td>No challenging behaviour</td>
<td>42 (58)</td>
<td>45 (61)</td>
</tr>
</tbody>
</table>

*People could have more than one challenging incident at each presentation.

**Clinical progress and outcome**—After assessment and treatment by ED, a referral to mental health services was made for 88% (n=64) of index and 74% (n=54) of second presentations (Fisher’s Exact, p=0.046). Services referred to included MHCT and community mental health agencies, alcohol and drug services, and child and adolescent services.

From second presentations 7% (n=5) referrals were to medical and surgical services. Only 66% (n=48) of index and 55% (n=40) of second presentations were actually assessed (Fisher’s Exact, p=0.044) by mental health services. For 15 paired presentations a comprehensive mental health assessment by MH services was not performed during people’s ED visits.

Patients were more likely to be admitted following their second presentation, with mental health or general ward admissions increasing from 23% (n=17) for index presentations to 32% (n=23) for second presentations. Index presentation admissions included six to a medical ward, and ten to a mental health facility or respite care. One person was discharged into police custody.

Second presentation admissions included 10 to a medical ward and 13 to a mental health facility. In ten pairs of presentations admission resulted both times. In 38 presentation pairs the patients were discharged home on both presentations. Planned follow-up was documented for 76% of index and 73% of second presentations.
Discussion

This study discovered that a group of patients re-presented to ED within days following ISH. Of concern was the risk of further serious ISH which was evidenced by increased inpatient admission numbers. A significant number of patients (54%) were involved in challenging incidents, demonstrating they were distressed, experiencing a mental health crisis and possibly were at risk to self and/or others.

While patients with mental health issues often report that general staff have negative attitudes toward them, some doctors have reported feeling helpless in addressing the emotional aspects of self-harm. This could have contributed to the finding that only half of the index visits and a third of the second visits had documented mental health assessments by ED, which might not be in alignment with assessments actually done.

A decreased level of consciousness, assumed of some patients post overdose, can also make a mental health assessment in ED difficult. Clinical notes about the inability to assess patients’ mental state, including information from support people or ambulance staff in regards to intent or risk, would assist with future mental health services engagement, discharge planning and follow-up so as to decrease re-presentations to ED.

A lack of an ED mental health assessment was apparent in presentations where patients had a pre-arranged appointment with the CMHT. Repetition of ‘the story’ to various health professionals might only cause increased stress and irritation for the patient. Of concern were the often extended waiting times to be seen by the CMHT. ED is seen as a safe environment by the CMHT, but without an assessment of risk to both patients and staff, safety measures could not be implemented.

An initial mental health assessment by ED staff within an hour of the patients’ arrival is recommended. The responsibility for safety remains with ED until the CMHT takes over the management of a particular presentation episode.

The CMHT only assessed a portion of those referred by ED despite best-practice guidelines recommending specialist mental health input for every ISH presentation to ED. Some researchers have questioned the effectiveness of increased resources for mental health care when there may be no decrease in subsequent ISH which is in line with a recent New Zealand study reporting no overall effects of a brief intervention following suicide attempts. However, even if an assessment is not associated with reduced repetition, being referred for specialist follow-up probably is.

Unless mental health services are involved on discharge from ED, follow-up care and linkage to other support systems is not guaranteed.

In this study patients who re-presented with minor complaints were usually treated for their injuries only and previous ISH presentations were missed or ignored. People at risk for completed suicide may obscure the cause of their injuries.

Implementation of an electronic ‘alert’ cue for re-presentations within a week could highlight to ED staff the need to review earlier presentations. In this ED setting, even if an attempt was made to access previous ED notes, the mental health crisis team and clinical notes were not easily accessible by ED staff. While sharing of notes between
services is recommended, dual record systems as evidenced here are still reported to exist in smaller DHBs in New Zealand.

ED re-presentations are costly. Healthcare expenses have become a focus for the public and government alike. Using 2002 financial costs of an ISH event of $6,350, the total estimated expense for the 73 re-presentations was over $32,500. This cost is based on what patients pay for their presentation if they do not reside in New Zealand; and because it excludes treatments such as blood tests and hospital admission, is an underestimate of true time and costs.

One of the limitations of this study was that there was no easy way to access data on ISH presentations. The group of patients who had repeat presentations for ISH had numerous other presentations. Presentation complaints and discharge diagnoses often lacked documentation about the intent behind some of the injuries; it is therefore possible that some ISH presentations were not identified.

The issue of identification raises questions around achieving the goals of the Suicide Prevention Strategy, in particular improving the care for people at risk of self-harm and suicide. ED care for people at risk of suicide and self-harm can be enhanced only if patients are identified. It is recommended that future Suicide Prevention Strategy implementation plans incorporate guidance on patient identification.

The classification of some presentations as both index and 2nd presentation could have introduced bias when comparisons were made between these groups and when overall results were interpreted. Nevertheless, it did highlight many ED visits within a short timeframe by a few patients where the issues and consequences of ISH events were not addressed.

Some patients were discharged without comprehensive mental health assessments leaving a risk of further undetected ISH. The consequent lack of a discharge plan or arranged follow-up could have contributed to patients seeking further assistance from ED when mental health services would have been better suited to meet their needs. For ED and mental health services the short timeframe to re-presentation raises an opportunity to intervene collaboratively within days as opposed to weeks.

A strength of this study is that it informed changes in ED management for people who present with ISH, demonstrating that simple data can make an important contribution to patient care and generally to quality improvement.

Alterations have been made to the IT system by adding ‘Self-harm’ as a presenting complaint and discharge diagnosis; also a mandatory field now has to be completed by clinical staff for certain diagnoses, such as ‘collapse’, to ascertain if it is related to ISH. In addition, a psychiatric liaison service linked to ED was established.

Expectations of this service include the assessment and management of those at risk of ISH in ED, and to support ED staff in the management of this group of patients. These system changes should contribute to improved ED care and decreased re-presentations of patients who intentionally self-harm. Other EDs should consider addressing issues of rapid re-presentations following ISH in ways that align with their systems and processes.
Conclusion

This paper presents one of the first detailed descriptions of a group of patients in New Zealand who rapidly re-present to ED. It highlights some important findings related to the timing of re-presentation and ED management. Re-presentations increase costs and workloads of an already overcrowded ED.

Subsequent investigation of mental health service input for this group contributed to improved IT services and the employment of psychiatric liaison nurses in ED. In future, analysis of data on ISH presentations as well as evaluation of the ED psychiatric liaison service is required to assess if system improvements led to improved outcomes.

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