Emergency Department (ED) Patients who present with Suicide Attempts involving Poisoning:

Do these episodes characterise their ED help seeking behaviours ?

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An Outline

- **Background:** poisonings vs the rest, identifying DSH (research) or "attempted suicide" (clinical), aggregated of episodes or patients

- **Serendipitous data:** routine ED data linked to psychiatric and MH referral data over 7 ½ years

- **ICD Poisoning and Referral Data:**
  - referral frequency: substances, repetition, non- DSH/AS poisonings
  - Repetition patterns: repeat referrals and repeat poisoners look the same and overlap
  - Non-poisoning presentations: majority of once-only poisoners have only poisonings, majority of repeat poisoners have an excess of non-poisoning presentations

- **Poisoning episodes don't characterise the behaviour of those who have repeated poisonings: so what?**

Background:

Repetition poisonings vs the rest, sample identification "Deliberate Self Harm (DSH)" (research) vs "Attempted Suicide (AS)" (clinical), aggregated episodes vs patients

- Suicide, Suicidal behaviours and suicide prevention are public health priorities, and repetition of attempts is usually regarded as perhaps the most important risk factor for completed suicide.

- Most DSH/AS episodes present in EDs and most (~80%) involve self-poisonings ("overdoses").

- DSH/AS studies usually source samples from ED either opportunistically through clinical processes (driven by ED concern for suicidality – "Attempted Suicides") or using researchers to review notes guided by specific guidelines, mainly the broader, non-motivational DSH criteria.

- Most studies, especially large multi-centre ones, have to focus on aggregates of separate episodes as linking episodes to individual patients is methodologically challenging. We know more about episodes than about patients.

Serendipitous data:

routine ED data linked to psychiatric and MH referral data over 7 ½ years

- The government mandates that Australian EDs routinely collect data about every presentation.
- "Overdoses" get recorded as ICD Poisonings (ICD9 codes 960 – 989)but usually cant be distinguished from accidental, substance use related, medical toxicity or environmental poisonings.
- The study ED prioritised data collection and also made the decision to identify and record all specialist consultations (nb. Psychiatric and Mental Health Liaison Nursing ones) in the single ED data base. The linkage of Psychiatric/MHLN referral is a proxy indicator of Attempted Suicide if not DSH
- Data was available from January 2000 to mid 2007 when the data platform was changed – so it reaches a clinically significant horizon
- Routine data has problems due to the both commitment and subjectivity of multiple assessors and recorders (at least an order of magnitude above that of researchers)in this area) .It is also what health departments make decisions on.

ICD Poisoning and Referral Data:

ED Presentations, ICD Poisonings and Mental Health referrals ("Attempted Suicide") by Episodes and by Patients

- In the ED at RPA between 1/7/2000 to 30/6/2007 (7 ½ years):
  - 350,000 ED presentations
  - 4,983 presentations with ICD-9 Poisonings in 4019 patients
    - 1.2% of admissions, state average at the time was 0.9% (Tenkel et al 2013)
  - 1909 ICD Poisoning presentations, in 1526 patients, referred to specialist MH staff
  - Proportions referred
    - **38.3% of all Poisoning Presentations (EPISODES)**
    - **38.0% of individual PATIENTS with Poisoning Presentations**

ICD Poisoning and Referral Data:

Observations about 38% of ED ICD "poisoning" presentations being referred for MH assessment

- **Caveat:** the referrals only reflect those seen in ED not after subsequent admission
  - ¼ (22%) medically admitted and only 14% seen in ED. nut If they were subsequently referred at rate (40%) of ED discharges, and all psychiatrically admitted (10.5%) were seen the proportion referred would increase to -> ~ 47%

- **Comparative Australian Data:**
  - A SE Melbourne Emergency Medicine Network (2009 – 12) found 34% of Poisonings were identified as Deliberate Self Harm using ED Triage entries **(Rahman et al. 2014)**

  - Victorian Emergency Medicine Dataset "Injury assessment module": 2000-2007 -> 46,784 ICD Poisonings reported identified by ED clinicians as "intentional "43%, "undetermined motivation" 27%, "unintended" 29% (or request from **Monash Injury Research Institute (MIRI)**)

  - Presumably the "intentional" is similar to our referred , "Attempted Suicides". Some "undetermined" would be elsewhere classifies as DSH. DSH rate among ICD Poisonings is then 43 – 70%, (at 65% referral rate in DSH is nearly 60% ,or 70% "at some point")

- **Hypothesis:** that the observed proportion referred reflects the limitation of only assessing for ED referrals and the fact that many ED Poisonings are not related to Attempted Suicide or Deliberate Self Harm. The profile of ingested substances provides some support

ICD Poisoning and Referral Data:

Mental Heath Referral by Ingested-Substance Group

Ingested-Substance Group	Poisoning Episodes	Referred To MH "Attempted Suicides"	"Once-Only" Over-represented	"Repeaters" Over-represented
"Psychiatric Drugs" (Anxiolytics 63%, Antidepressants 25%, Antipsychotics 12%)	1573	**62.7%**		+
Non-prescribed, "easily available" drugs (simple analgesics 93%, antihistamines 7%)	834	**46.0%**		
ICD Other Poisonings	759	**39.0%**		
Mixed Psychiatric and Medical indications (anticonvulsants, mood stabilisers)	105	**36.2%**		++
Medical Drugs (Cardiovascular Drugs 35%, warfarin 21%, diabetic 8%)	384	**14.8%**	+	
Substances of Abuse (Opiates 63%, Stimulants 34%, THC and Alcohol)	978	**12.3%**	+	
Environmental Exposures (Smoke, Carbon Monox, Chlorine Inhalations, Acids and alkalis, petroleum substances, fish, mushroom and berry ingestions)	351	**7.7%**	+++	
Average Rate of Referral		**38%**	**33%**	**51%**

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ICD Poisoning and Referral Data:

The Profile of Repetition for Poisonings and MH Referrals:

The proportions of All PATIENTS and all EPISODES for which single and multiple presenters account

	Number of PATIENTS with this number of episodes (poisonings or referrals)						
	1	**2**	**3**	**4**	**5 or 6**	**7 - 10**	**≥ 11**
Poisonings (n=4983)	**89%**	7%	2%	0.8%	0.7%	0.4%	0.3%
		11%					
MH Referrals (n=1909) "Attempted Suicides"	**87%**	8%	2%	1%	0.8%	0.6%	0.2%
		13%					
	Proportion of TOTAL EPISODES due to patients with this number of episodes						
Poisonings (n=4983)	**71%**	11%	6%	3%	3%	3%	3%
		29%					
MH Referrals (n=1909) "Attempted Suicides"	**70%**	13%	6%	3%	4%	2%	1%
		30%					

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ICD Poisoning and Referral Data:

How well differentiated are Referred (Attempted Suicides" and non-referred non-suicidal poisoning?

	Patient group determined by the number of ICD Poisonings						
Patients not referred on any presentation	1	2	3	4	5 or 6	7 to 10	11 - 16
	67%	32%	23%	13%	13%	0%	0%

- "Once-only" Poisoners can be divided into a referred "Suicide Attempters" (33%) group and, with a little flexibility for DSH, a non-suicidal group
- "Repeat Poisoners" can't be so easily differentiated
  - Referral rate of 51% for each and every poisoning presentation either could mean a small group that is seen a lot but as data shows there are a very limited number of patients who are not seen at all - beyond 5 presentations all have been seen at least once
    - If a patient is referred at all, all but 3 had been referred by their 3rd presentation (and in those 3 nearly all presentations had led to medical admission (lower "in-ED" referral rate) and 2 were well known by inpatient C-L Psychiatry
    - The 8 patients who had not been seen at all despite in a career of 4 or 5 poisonings had, with one exception, had been admitted on all or all but one presentation (two had had a psychiatric admission)
- The degree of overlap means it is inappropriate to compare referred and non-referred groups and will only compare the referred patients with the whole group of poisonings - initially to re-emphasise the commonality between the group in their patter of representations

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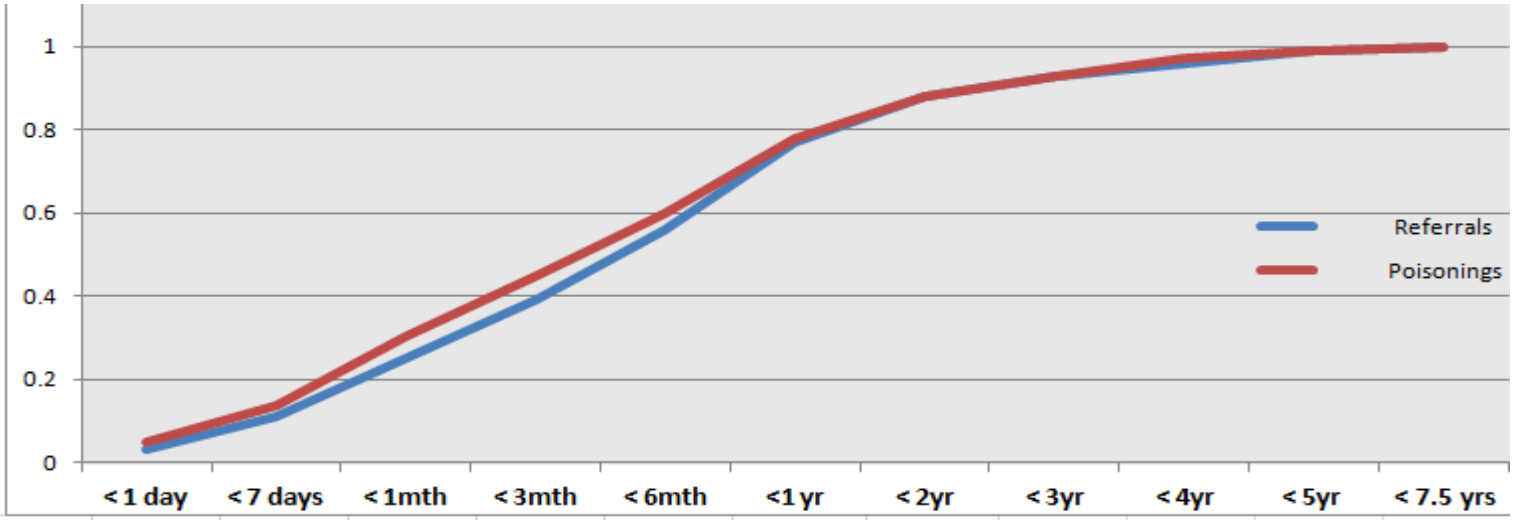
ICD Poisoning and Referral Data:

Cumulative Plots of Inter-episode Intervals for both Poisonings and MH Referrals in multiple poisoners and those multiply referred.



	< 1 day	< 7 days	< 1mth	< 3mth	< 6mth	<1 yr	< 2yr	< 3yr	< 4yr	< 5yr	< 7.5 yrs
Referrals	0.03	0.11	0.25	0.39	0.56	0.77	0.88	0.93	0.96	0.99	1.00
Poisonings	0.05	0.14	0.30	0.45	0.60	0.78	0.88	0.93	0.97	0.99	1.00

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ICD Poisoning and Referral Data:

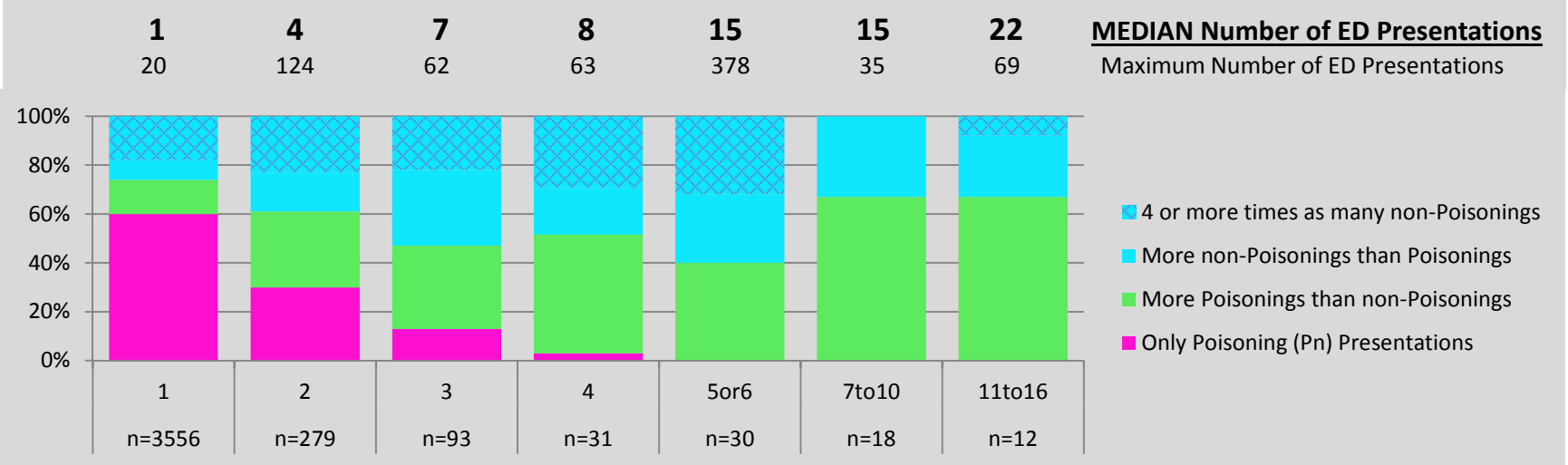
The ED help-seeking behaviours of patients who have presentations with Poisonings

- All ED presentation were identified in the hospitals main clinical data-base for samples of 120 patients with each of one or two poisoning presentations and for all patients with three or more presentations

ICD Poisoning and Referral Data:

Patients with ED Poisoning Episodes:

ED Presentations - Poisonings & Non-Poisonings – for poisoning frequency groups



	Only Poisonings	Non-Poisonings less or equal Poisonings	Non-Poisonings exceed Poisonings	(Non-poisonings exceed 4 x Poisonings)
All patients	55%	17%	28%	19% (68%)
All Repeaters	21%	36%	43%	22% (51%)

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Poisoning episodes don't characterise the behaviour of those who have repeated poisonings: so what?

- Findings aren't new: A series of papers (Henderson 1977, Paykel 1978, Kurz 1987) suggested a 3 cluster model: a non-serious group based on interpersonal conflicts (who generally didn't represent) a more serious group who also seldom represented and a group of repeaters who had multiple suicidal and non-suicidal presentation and had the worst prognosis.

- Risk management strategies focus on repetition as a treatment goal and outcome measure, however most patients (~90%)do not have repeat episodes in a clinically meaningful time frame, and for those who do, the poisonings do not characterise their overall behaviour so the strategy may not be appropriate for either group.

- Multiple repeaters look like multiple ED presenters – another group with high mortality and morbidity who we are only beginning to learn about

- Considering patients is generally more interesting and informative than focusing on particular behaviours they exhibit from time to time

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