Annual Report - 2016

Bristol Self-Harm Surveillance Register

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Avon and Wiltshire NHS Mental Health Partnership NHS Trust

University Hospitals Bristol NHS NHS Foundation Trust

North Bristol NHS NHS Trust

Bristol City Council

University of Bristol

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1. Summary of key findings

- There were 1,536 episodes of self-harm presenting to the BRI in 2016. The ratio of male: female patients has increased slightly from 1.5 in 2015 to 1.9 in 2016.
- The median waiting time between ED attendance and clinical assessment increased (from 57 minutes in 2011) to 81 minutes in 2016.
- The marked reduction in waiting time for a psychosocial assessment that followed the extension in the Liaison Psychiatry Team's operating hours has continued into 2016. An economic evaluation indicates there may have been nett cost savings.
- The number of patients ingesting tricyclic antidepressant medication has increased somewhat since 2015 (59 vs. 49 cases).
- The proportion of patients admitted (62%) to a medical bed has declined and is at its lowest level since we began monitoring this. The proportion of red matrix patients being admitted to a hospital bed fell from 70.6% in 2015 to 42.2% in 2016.
- The proportion of people receiving a psychosocial assessment was 20% lower in people presenting with self-injury compared to self-poisoning.
- Based on data up to the end of 2015, 57 people who presented for self-harm at the BRI between 2011 and 2015 have gone on to die by suicide (probable suicide cases based on Bristol coroner's notes). Roughly 30% of these people died by hanging.
- The frequency of young people presenting for self-harm to the Bristol Royal Hospital for Children had remained stable in 2016 with an average of 4-5 presentations a week.
- Roughly 10% of individual episodes had experienced domestic violence. A higher prevalence was observed in women, particularly non-Caucasian women.
- Re-attendance with a repeat episode of self-harm within the 12 months period are at their lowest recorded levels – 15% in 2016 compared to >18% in each of the preceding 3 years.
- Mean length of hospital stay in 2016 (2.0 days) was the lowest recorded since the register began (2015: 2.4 days; 2014: 2.1 days and 2013: 2.3 days)

2. Introduction

Hospital presenting self-harm is a major public health concern. Not only does it account for an estimated 200,000 Emergency Department (ED) attendances annually in England, but up to a quarter of these individuals go on to repeat self-harm in the next 12 months.

Self-harm is also a major risk factor for suicide. A fifth of all people who die by suicide attend the ED following self-harm in the year prior to their death and over a third of all people who die by suicide have a past history of self-harm. The hospital treatment of people who self-harm provides an important opportunity for suicide prevention. For this reason the recently (2016) refreshed National Suicide Prevention Strategy for England was extended to include self-harm prevention as a key area and hospital admission for self-harm is one of the standard outcome indicators used by Local Authorities to monitor population mental health and wellbeing.

It is important to note that whilst the term 'self-harm' includes acts of self-injury or overdose carried out both with and without suicidal intent (the latter also known as non-suicidal self-harm), most people who present to hospital following self-harm are suicidal/have attempted suicide. Furthermore, people who self-harm without suicidal intent have high levels of mental distress and are at high risk of making suicide attempts.

The Bristol Self-harm Surveillance Register, a database maintained in the Emergency Department of the Bristol Royal Infirmary, part of University Hospitals Bristol NHS Foundation Trust, has been recording detailed information on patients presenting to hospital for self-harm since September 2010. Information recorded on the register enables an assessment of i) the incidence of hospital-presenting self-harm in Bristol and its geographical distribution, ii) trends in the incidence of self-harm and its management; iii) the impact of changes in service delivery on patient management and outcomes and iv) risk factors for repeat self-harm and suicide; v) the medicines taken in overdose. This information contributes to local prevention efforts and to the STITCH (Services and Trusts Integrating to Transform Care in Self-Harm) Health Integration Team (HIT).

These data also provide insight into the management of patients for clinicians and managers while also allowing the evaluation of services against NICE guidelines for treatment of self-harm patients. This report, our sixth annual report, outlines the annual data on self-harm patients collected in 2016. Due to major problems accessing Southmead Hospital Information systems and staff changes we have not been able to include data for Southmead in this year's report. We expect to have data for 2016 later in the year, this will provide important insights into the impact of recently funded extended Liaison Psychiatry services at Southmead.

In this year's report we focus on domestic violence, self-harm amongst students and data quality issues. We also summarise findings of a recent NIHR CLAHRC West economic analysis (lead by Brent Opmeer and Will Hollingworth) of recent investment in Bristol's liaison psychiatry service.

3. Methods

Potential self-harm attendances are identified using electronic searches of the Emergency Department records. For the purposes of the register we define self-ham as: "intentional self-injury or self-poisoning irrespective of motivation or degree of suicidal intent". Once deliberate self-harm attendances have been

confirmed the details of the attendance are recorded on an Access database developed by Bristol University. Numerous data sources are used in collecting the information describing patient attendances, these include: a) the hospital patient administration system (PAS), b) the local mental health trust's PAS system RIO, c) the liaison psychiatry team's assessment forms and d) local coroner's records. A validation exercise in 2010 showed that this approach identifies 99% of all cases of self-harm. Repeating this exercise in 2015 revealed our processes remain robust with 98% case ascertainment. Once all the details of identified cases of self-harm have been recorded on the database, the data are stored on a Trust server and anonymised uploads are sent to the University of Bristol for analysis.

Analyses in this report describe both individual people and episodes of self-harm. One person can have multiple episodes of self-harm (for example in 2016 one patient had 35 attendances), so the total number of episodes of self-harm is greater than the number of people who present to the hospital. Some analyses are on individual people, based on their first (index) attendance during the year, while other analyses are based on all episodes of self-harm. These latter analyses reflect the overall amount of hospital care delivered to this vulnerable group of people.

Furthermore, some of the analyses included in this report are stratified by patient matrix risk category or whether the patient had a psychosocial assessment. The matrix is used to assess patient risk at triage and the categories include green, amber or red. Matrix categories provide guidance for clinical staff in deciding whether a patient shall be referred for an immediate psychosocial assessment. High risk patients are assigned a red or amber matrix risk category and therefore should receive an assessment prior to discharge.

In addition to the clinical data recorded on the database, we also collect information on cases of suicide from the local coroner's office. Our expert researchers periodically search the coroner's records for cases of suicide and link these data to the register. These suicides include 'probable' cases as a coroner's verdict often has not been assigned due to delays in a death being registered and an inquest.

4. Ethics, clinical governance and funding

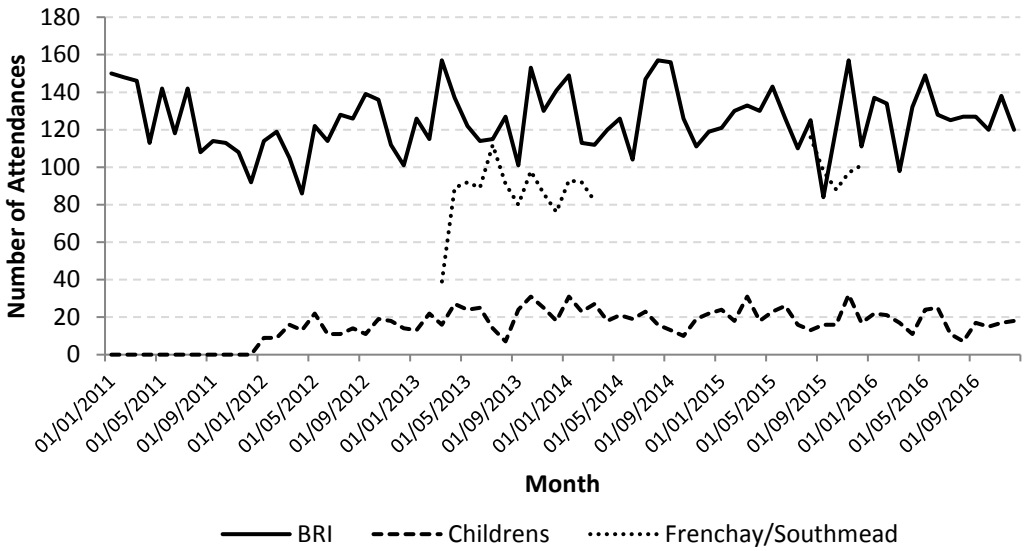
Southmead Research Ethics Committee approved the research database. University Hospitals Bristol NHS Foundation Trust have given ethical approval until 1/6/2019. The surveillance system received start-up funding from NHS Bristol and Avon and Wiltshire Partnership NHS Trust. Identification of a source of long term funding is essential for the future of the surveillance register.

5. Findings

5.1 Number of people attending the ED following self-harm: 2011-2016

There were 1,535 self-harm presentations to the Bristol Royal Infirmary's Emergency Department in 2016, a slight increase (+3.0%) compared to the previous year (presentations in 2015=1491). The 1,535 attendances were made by 1,142 individuals, therefore roughly one in three attendances were repeat episodes. Since the inception of the register the number of people attending the BRI following self-harm appears to have remained stable at roughly 125 presentations a month (Figure 1). Due to problems with accessing computer systems, data for Southmead are not yet available for most of 2015-16. These issues have only recently been corrected.

Figure 1. Number of self-harm attendances per month at the Bristol Royal Infirmary, Bristol Royal Hospital for Children and Frenchay/Southmead Hospital*, 2011-2016



*Data include presentations made to Frenchay and subsequently to Southmead when services moved.

The total number of presentations over time at the BRI did not appear to change considerably. Presentations were more often female (Figure 2) and there has been an increase in the female to male ratio (Figure 3). In 2011 there were 1.4 female presentations to every male, but this has increased to 1.9 in 2016. The change in the gender ratio appears to be driven by a greater number of female to male presentations in <25 year olds (Figure 3). An increase, observed during 2014, in the number of presentations by people aged >54 years appeared to level off in 2015 (Figure 4).

Figure 2. Number of self-harm attendances per month at the Bristol Royal Infirmary by gender, 2011-2016

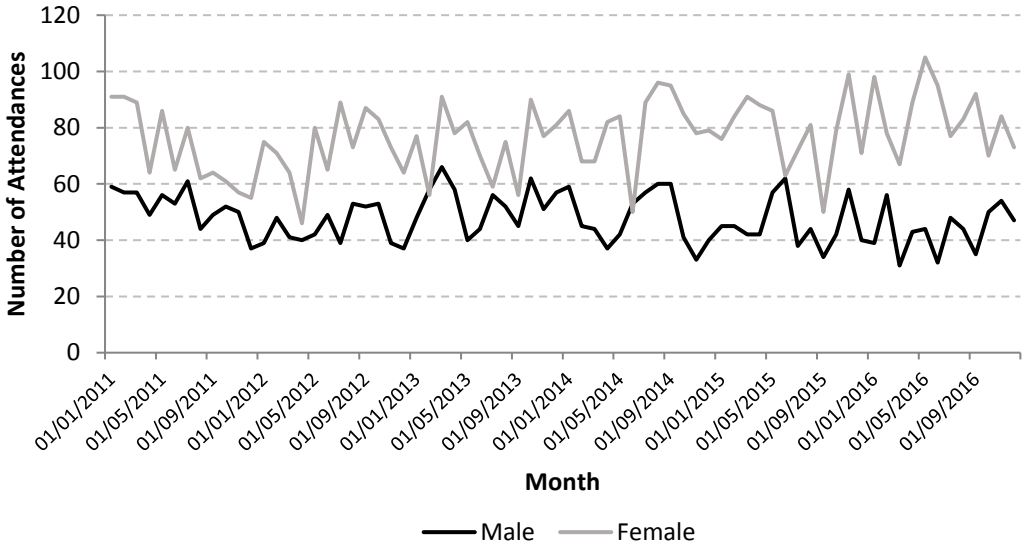


Figure 3. Female to male ratio of hospital presentations, 2011-2016

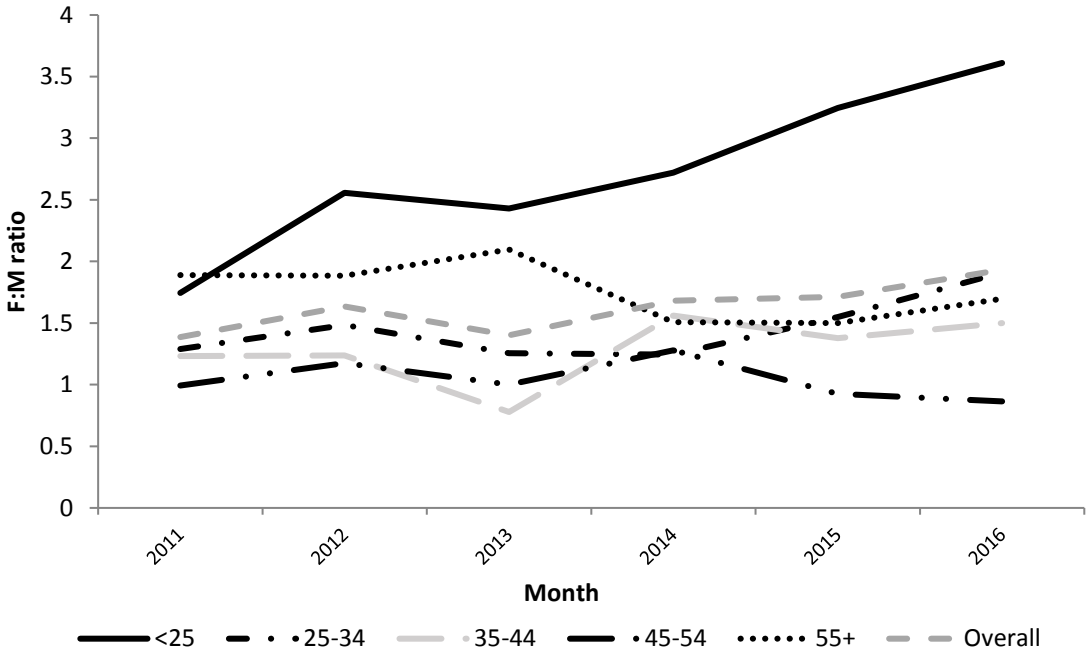
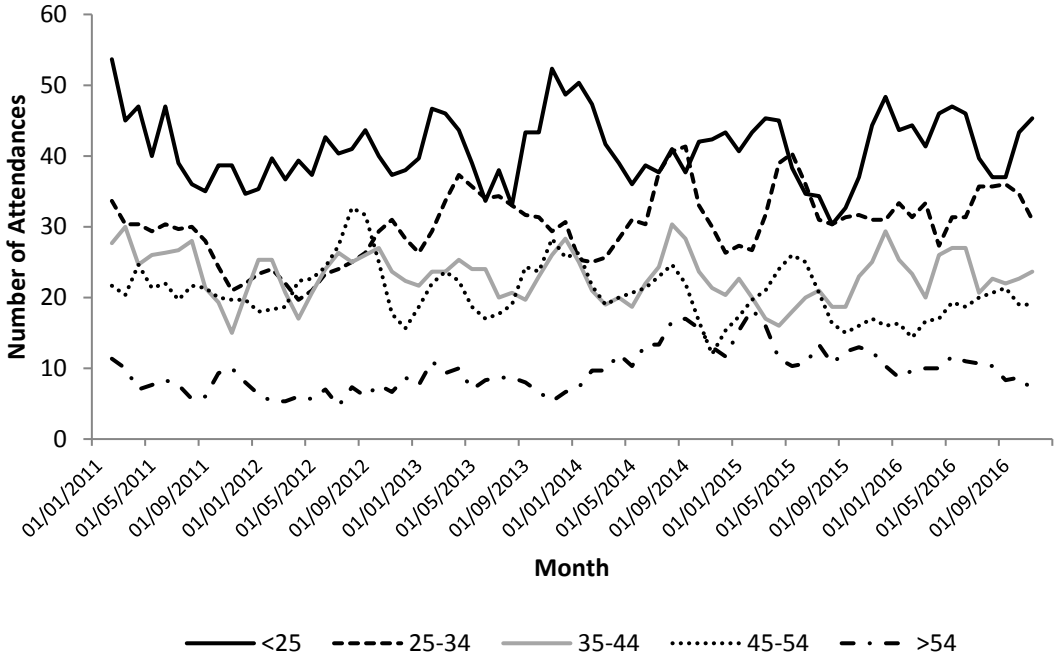


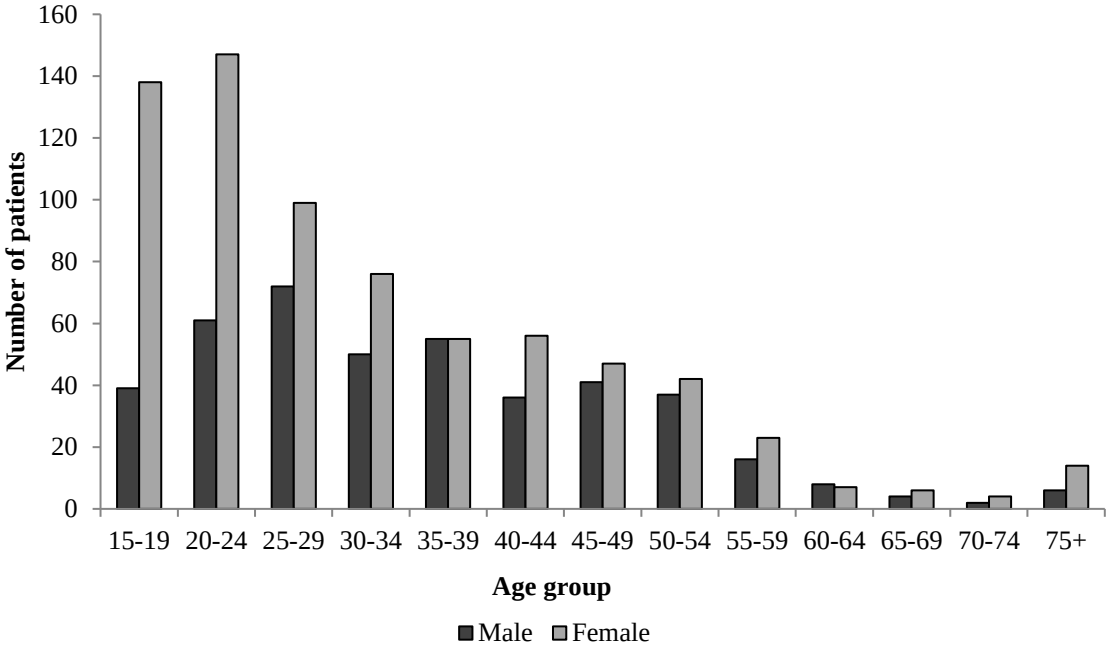
Figure 4. Number of self-harm attendances per month by age grouop (3-month moving average), 2011-2016



5.2 Patient characteristics for presentations to the Bristol Royal Infirmary in 2016

Female patients made up a greater proportion of the self-harm patient population than males (female vs. male: 62.6% vs. 37.4%) (Figure 5). Females were on average younger than male patients (median age male vs. female: 34 vs. 27, $p<0.001$, Table 1).

Figure 5. Number of patients by gender per 5 year age group



The prevalence of unemployment was high in both genders but particularly so in male patients (Unemployment rate male vs. female: 43.1% vs. 35.1%, chi^2=16.8, df=5, p<0.005, Table 1). Males were also far less likely to be living with family (44.9% vs. 62.0% chi^2=31.7, df=2, p<0.001).

Table 1. Patient characteristics, based on first episode of self-harm in 2016 at the BRI*

	Male (n=427)	**Female (n=715)**	**Total (n=1142*)**
Median age	34	27	30
Age range	16-88	13-87	13-88
White	354 (90.8)	613 (91.4)	967 (91.1)
Mixed	14 (3.6)	20 (3.0)	34 (3.2)
Asian	9 (2.3)	12 (1.8)	21 (2.0)
Black	10 (2.6)	19 (2.8)	29 (2.7)
Other (eg Chinese)	3 (0.8)	7 (1.0)	10 (0.9)
Employed	94 (31.1)	162 (29.4)	256 (30.0)
Unemployed	130 (43.1)	194 (35.1)	324 (37.9)
Retired	10 (3.3)	14 (2.5)	24 (2.8)
Full time student	32 (10.6)	116 (21.0)	148 (17.3)
Sickness	28 (9.3)	46 (8.3)	74 (8.7)
Other	8 (2.7)	20 (3.6)	28 (3.3)
Living Alone	110 (28.7)	152 (22.7)	262 (24.9)
With family	172 (44.9)	416 (62.0)	588 (55.8)
Other	101 (26.4)	103 (15.4)	204 (19.4)

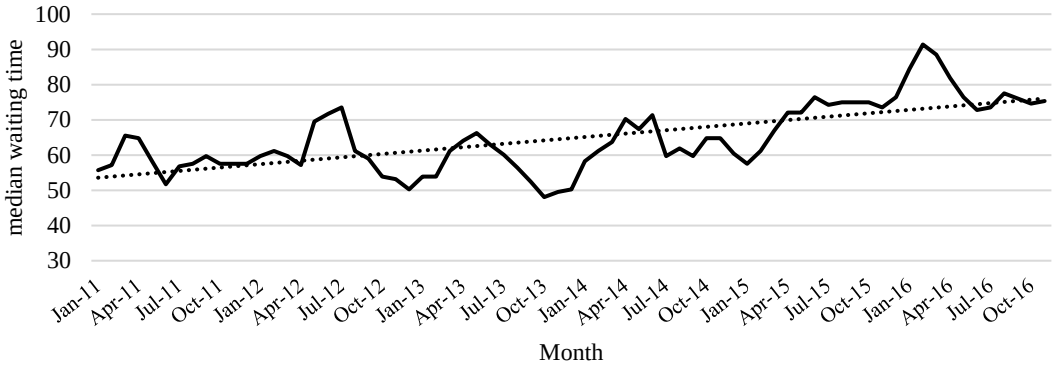
* unknown data; 6 patients had no information on age, 81 patients had no information on ethnicity, 288 patients had no information on employment status and 88 patients had no information on living circumstances.

5.3 Waiting times

The median waiting time for self-harm patients between booking in and being assessed in triage was 19.7 minutes (mean 27, range 0-166)[1]. This represents an increase from the figure of 17.5 minutes reported last year but similar to waiting times in 2013-14. The median waiting time for those patients who self-discharged after triage was slightly longer at 27 minutes (mean 31.5, range 0-85). There was limited statistical evidence to suggest that the waiting time differed between those who self-discharged and those who did not (Wilcoxon rank-sum, p=0.064). It seems possible that increased waiting times were related to patients self-discharging following triage.

[1] These summary statistics were calculated for patients who were triaged within 200 minutes from attendance – 16 episodes were excluded

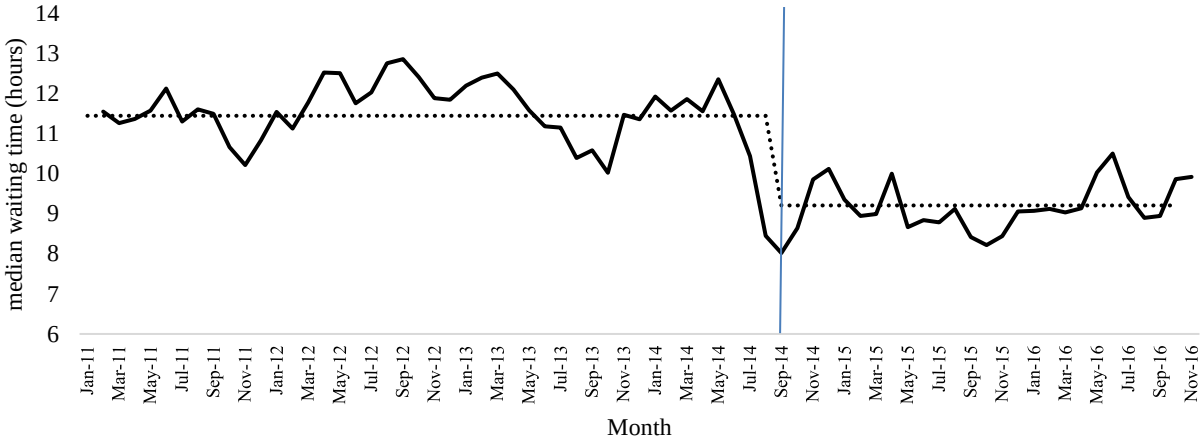
Figure 6. Median time from triage to being seen by a clinician per month (3-month moving average with trend line), 2011-2016



The median time from attendance to medical assessment by a clinician was 105 mins[2]. The average time from attendance to medical assessment was inversely associated with a patient's risk (as indexed by the risk matrix); higher risk patients waited less time for a medical assessment (high risk wait: 87 mins vs. low risk wait: 124 mins). It appears the median time from triage to medical assessment has increased in recent years from 57 mins in 2011 to 81 mins in 2016 (Figure 6)[3]. This is likely a reflection of increased pressures on hospital ED staff. In patients who had a mental health assessment, the median time from assessment by an ED clinician to being seen by a mental health professional was 9.5hrs[4]. Unlike time to medical assessment, time to being seen by a mental health professional has decreased considerably and this decrease is likely related to the expansion of liaison psychiatry services at the BRI (Figure 7). This decrease has coincided with a reduction (-2.9%, $p<0.001$) in the number of people self-discharging after being seen by an ED clinician from 9.7% (CI 8.9-10.5) to 6.8% (CI 6.0-7.7).

[2] These summary statistics were calculated for patients who were seen by a clinician within 330 minutes from attendance – 81 episodes were excluded. This has been calculated in a different way to previous years
[3] these summary statistics were calculated for patients who were seen by a clinician within 330 minutes from triage
[4] These summary statistics were calculated for patients who were seen by a mental health professional within 120 hours from medical assessment. This has been calculated in a different way to previous years

Figure 7. Median time (hours) from being seen by ED clinician to being seen by a mental health professional per month (3-month moving average with pre/post liaison psychiatry expansion average).



5.4 Method of self-harm

Self-poisoning was the most frequently used method of self-harm and was involved in over two thirds of all episodes. Roughly 9% of people used both self-injury and self-poisoning (Table 2).

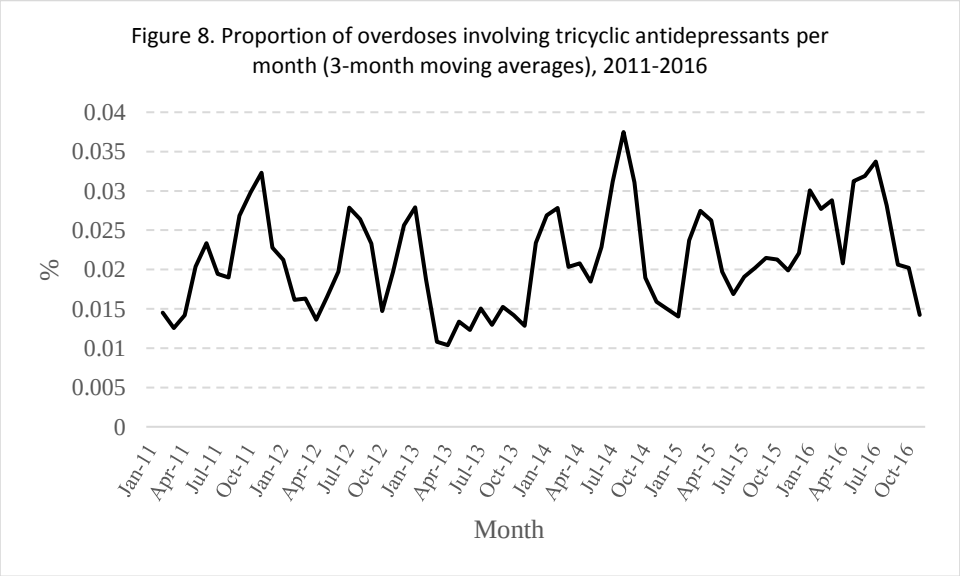
More unusual and high lethality methods were rare (approximately 1.6% of all cases). Attempted hanging occurred in under 1% of cases and the prevalence was slightly higher in females. The number of people presenting following an attempted hanging at the BRI in 2016 (n=8) was slightly lower compared to previous years (2014, 2013, 2012: 17, 14, and 13 respectively).

Table 2. Method of self-harm (all episodes) - 2016

	Male n=523	**Female n=1011**	**Total n=1535***
Self-poisoning and self-injury	16 (3.1)	83 (8.2)	99 (6.5)
Self-poisoning alone	363 (69.4)	749 (74.1)	1112 (72.5)
Self injury alone	138 (26.4)	169 (16.7)	307 (20.0)
Unknown	6 (1.2)	10 (1.0)	16 (1.0)
Rare methods			
Hanging	7 (1.3)	1 (0.1)	8 (0.5)
Jumping	5 (1.0)	9 (0.9)	14 (0.9)
Car Fumes	4 (0.8)	3 (0.3)	7 (0.5)
Charcoal poisoning	0 (0)	0 (0)	0 (0)

*1 episodes had no data on gender

There were a total of 59 (4.9%, 59/1211) episodes of self-poisoning involving tricyclic antidepressants (TCA) and the majority of these involved Amitriptyline (94.9%, 56/59). The remaining 3 cases involved Dosulepin (n=1) and Lofepramine (n=2). Of the patients who took TCAs and had data on ward of admission (n=43), only two (4.7%, 2/43) were admitted to ITU. Trends in the use of TCAs look to have remain fairly stable (Figure 8). The majority of episodes involving TCAs were in individuals who had previously self-harmed (73%).



Paracetamol was by far the mostly commonly ingested drug taken as part of an episode of self-harm. While many people ingest several different medicines when they overdose, paracetamol (in its pure form) was used in 39.0% (472/1211, Table 3) of episodes. Tramadol was the 6th most frequently ingested medicine in 2016; there has been a continuing rise in the incidence of suicides using tramadol nationally. Another drug class recently featuring in suicide statistics nationally are barbiturates (probably obtained on-line). We identified no cases of barbiturate poisoning in 2016.

Table 3. Top-ten most frequently ingested poisons - 2016

	Episodes (%)*	Median no. pills ingested	IQR
Paracetamol	472 (39.0)	16	10-30
Diazepam	182 (15.0)	14	6-28
Ibuprofen	147 (12.1)	12	7-20
Zopiclone	102 (8.4)	7	4-14
Sertraline	82 (6.8)	13	7-20
Tramadol	67 (5.5)	10	5-16
Codeine	64 (5.3)	10	8-20
Mirtazapine	58 (4.8)	11.5	6-22.5
Co-codamol	57 (4.7)	15	8-30
Citalopram	53 (4.4)	13	7-28

* One episode can involve multiple drugs. ** paracetamol can be one of a number of compounds in one pharmaceutical, paracetamol in forms such as this are not included in the above number of paracetamol poisonings.

Investigating category of drug (Table 4), paracetamol, in either pure form or as the major element in a pharmaceutical, was the most commonly ingested poison. Just over half (51%, 621/1211) of all self-poisoning episodes fell into this category of drug. Antidepressant drugs were involved in 29% of cases of self-poisoning. The 'Other' drug category included drugs such as statins, antibiotics, insulin and antihistamines.

Table 4. Category of drug ingested during self-poisoning - 2016

	Episodes	**%***
Paracetamol (pure & compounds)	621	51%
Other	379	31%
Antidepressants	355	29%
Benzodiazepine	245	20%
NSAIs	192	16%
Other Analgesics	191	16%
Other Minor Tranquilizers	123	10%
Antipsychotic	92	3%
Aspirin	23	2%

* The denominator for these percentages is the total number of self-poisoning episodes (n=1211). One episode may involve the ingestion of numerous drugs

5.5 Previous self-harm and specialist psychiatric care

Excluding patients with missing data, four out of every five patients had a previous history of self-harm (Table 5). Previous psychiatric treatment was recorded in just over three quarters of all index episodes. Roughly three quarters of all first attendances in 2016 had never had any psychiatric inpatient treatment and 8.5% (63/745) had been a psychiatric inpatient in the previous year.

Table 5. Previous self-harm and psychiatric care in index self-harm presentations, 2016

	Male n=427	**Female n=715**	**Total n=1142***
Previous self-harm*			
Yes	248 (79.0)	475 (82.0)	723 (81.0)
No	66 (21.0)	104 (18.0)	170 (19.0)
Previous psychiatric treatment*			
Yes	226 (72.0)	440 (79.1)	666 (76.6)
No	88 (28.0)	116 (20.9)	204 (23.5)
Previous psychiatric inpatient*			
None	202 (76.2)	356 (74.2)	558 (74.9)
Within a year	22 (8.3)	41 (8.5)	63 (8.5)
Over a year	41 (15.5)	83 (17.3)	124 (16.6)

* Unknown data: 249 had no information on previous self-harm. 272 had no information on previous psychiatric treatment. 397 had no information on previous psychiatric inpatient stays. **The number of episodes with missing data has increased since April 2016 and requires investigation.**

5.6 Patient management

Of all self-harm episodes, 74% were assessed with the matrix. Patients who did not get assessed with the matrix were less likely to receive a psychosocial assessment, and were less likely to be admitted than those who were assessed as amber in the matrix risk category (Table 6).

Table 6. Episode Management by matrix risk category - 2016

	Green	**Amber**	**Red**	**Unknown**	**Total**
	n=171	n=841	n=118	n=405	n=1535
Psychosocial Assessment n (%)*					
Yes	64 (37.9)	646 (77.7)	96 (82.1)	191 (48.5)	997 (66.0)
No	105 (62.1)	185 (22.3)	21 (18.0)	203 (51.5)	514 (34.0)
Admitted to a bed n (%)*					
Yes	57 (33.5)	625 (74.7)	49 (42.2)	219 (56.0)	950 (62.8)
No	113 (66.5)	212 (25.3)	67 (57.8)	172 (44.0)	564 (37.3)
Not assessed*	**Green** n=105	**Amber** n=185	**Red** n=21	**Unknown** n=203	**Total** n=514
Not referred	74 (70.5)	55 (30.6)	2 (10.5)	60 (30.2)	191 (38.0)
Policy decision not to assess	4 (3.8)	21 (11.7)	3 (15.8)	19 (9.6)	47 (9.3)
Took own discharge	9 (8.6)	54 (30.0)	10 (52.6)	72 (36.2)	145 (28.8)
Refused assessment	12 (11.4)	21 (11.7)	0 (0.0)	7 (3.5)	40 (8.0)
Other reason eg inpatient	6 (5.7)	29 (16.1)	4 (21.1)	41 (20.6)	80 (15.9)

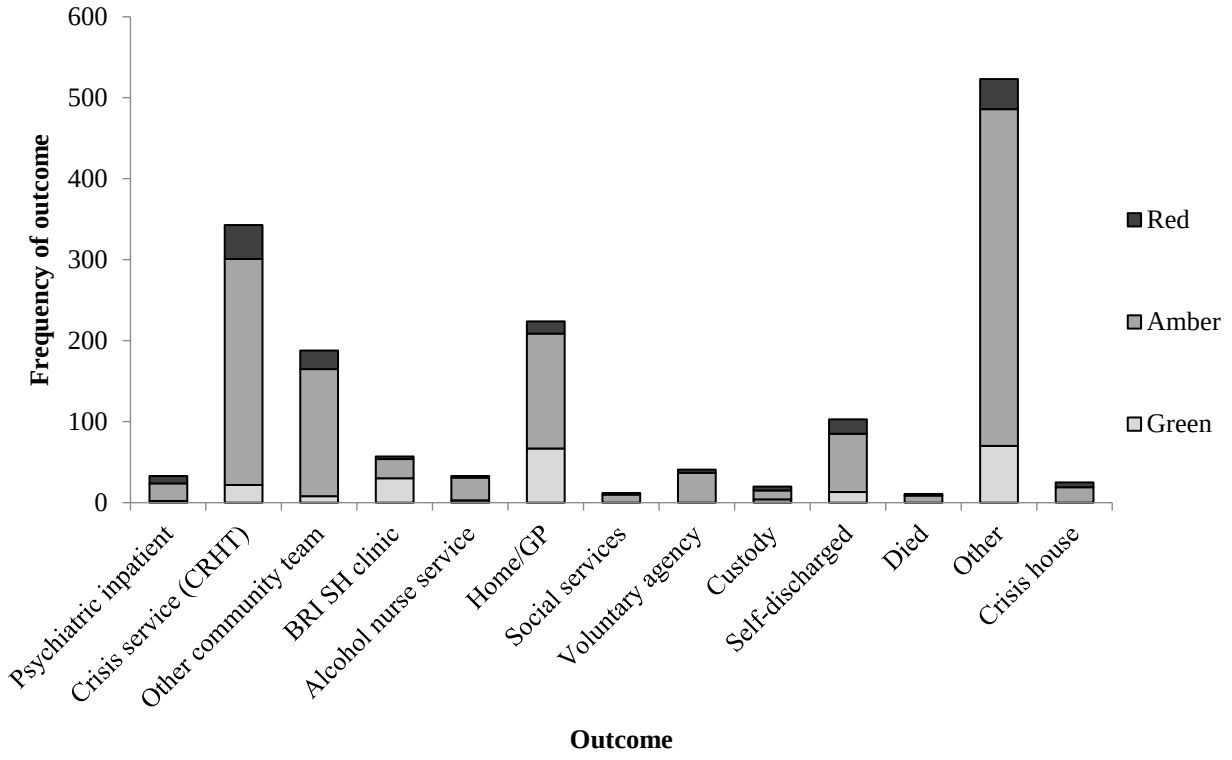
* Unknown data: 24 patients had no data on whether they received an assessment. 21 patients had no data on whether they were admitted. 11 patients had no data on reason for non-assessment

Overall, 66.0% of patients received a psychosocial assessment and just under two thirds (63%) were admitted to a hospital bed. Patients who were categorised as higher risk on the matrix (amber or red) were more likely to be admitted and receive a psychosocial assessment. Note: the proportion of red matrix patients being admitted to a hospital bed fell markedly from 70.6% in 2015 to 42.2% in 2016. Surprisingly high proportions of patients with amber (30%) and red (53%) matrix risks took their own discharge from the ED. The vast majority of the presentations admitted to a hospital bed went to the observation ward (92.2%, 876/950 (4 patients had no data on ward of admission)). Altogether 1.4% (13/950) of patients were admitted to ITU and 6.0% (57/950) to other general hospital wards. The patients who were admitted to ITU following their self-harm were generally older (mean age: 46) and more often used self-poisoning (self-poisoning alone: 93%) compared to the general self-harm patient population. A range of drugs were taken in those patients admitted to ITU including anti-depressants and benzodiazepines. These patients were less likely to be in current contact with mental health services (49.1%, 6/14) compared to those admitted to other wards.

5.7 Episode outcome following discharge

Episodes of self-harm most frequently resulted in patients being referred to "other services". This category includes a range of services including CAMHS (5%), Off the Record (5%) and ROADS (Recovery Orientated Alcohol & Drugs Service, 3%). Community mental health services and psychiatric inpatient admission was more common in higher risk matrix patients (Figure 9) while referral to a GP was the most common outcome in Green matrix risk patients.

Figure 9. Outcome of self-harm episodes by matrix risk category at the Bristol Royal Infirmary, 2016



5.8 Patient characteristics by matrix risk category

The characteristics of patients differed both across matrix risk categories and between those who did and did not receive a psychosocial assessment. Age appeared to be positively associated with matrix risk category at the BRI (Table 7). For example, the median age of red matrix risk patients was 11 years greater than that of green matrix risk patients.

Higher matrix risk patients at the BRI more often had a history of self-harm and were less likely to use self-poisoning in their episode. Those patients with red and amber matrix scores were more likely to be assessed than those triaged as low risk (green).

Patients who received a psychosocial assessment were more likely to be older, have a previous history of self-harm, be in current contact with services and have taken an overdose. People who had self-injured were

considerably less likely to receive a psychosocial assessment compared to people who self-poisoned (SI vs SP % assessment: 16.5% vs 76.0%).

Table 7. Characteristics of BRI self-harm patients' index episode by matrix risk category and psychosocial assessment - 2016

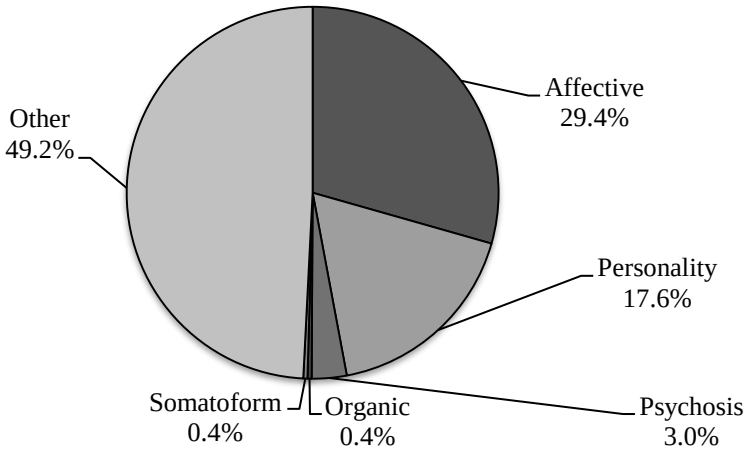
	Matrix				Psychosocial Assessment*	
	Green *(n = 144)*	Amber *(n = 629)*	Red *(n = 84)*	Unknown *(n = 285)*	No (n = 372)	Yes (n = 754)
Median age (*IQR*)	23 (19-32)	29 (21-42)	34 (24-45)	35 (26-45)	29 (21-4)	30 (22-43)
		p<0.001			p=0.013	
Gender*						
Male	56 (38.9)	209 (33.2)	43 (51.2)	119 (41.8)	139 (37.4)	280 (37.1)
Female	88 (61.1)	420 (66.8)	41 (48.8)	166 (58.3)	233 (62.6)	474 (62.9)
		χ^2 = 11.0 df=2 p=0.004			χ^2 = 0.006 df=1 p=0.940	
Previous SH						
Yes	72 (50.0)	445 (70.8)	67 (79.8)	140 (49.1)	182 (48.9)	536 (71.1)
no	39 (27.1)	100 (15.9)	7 (8.3)	24 (8.4)	35 (9.4)	134 (17.8)
Unknown	33 (22.9)	84 (13.4)	10 (11.9)	121 (42.5)	155 (41.7)	84 (11.1)
		χ^2 = 23.0 df=2 p<0.001			χ^2 = 1.6 df=1 p=0.207	
Repeat SH within 2016						
Yes	8 (5.6)	109 (17.3)	15 (17.9)	39 (13.7)	53 (14.3)	117 (15.5)
no	136 (94.4)	520 (82.7)	69 (82.1)	246 (86.3)	319 (85.8)	637 (84.5)
		χ^2 = 12.9 df=2 p=0.002			χ^2 = 0.3 df=1 p=0.576	
In current contact with services						
Yes	37 (25.7)	276 (43.9)	54 (64.3)	101 (35.4)	125 (33.6)	340 (45.1)
no	66 (45.8)	257 (40.9)	22 (26.2)	65 (22.8)	74 (19.9)	335 (44.4)
Unknown	41 (28.5)	96 (15.3)	8 (9.5)	119 (41.8)	173 (46.5)	79 (10.5)
		χ^2 = 21.7 df=2 p<0.001			χ^2 = 9.6 df=1 p=0.002	
Psychological assessment*						
Yes	54 (37.8)	497 (79.5)	72 (86.8)	131 (47.6)	-	-
no	89 (62.2)	128 (20.5)	11 (13.3)	144 (52.4)	-	-
		χ^2 = 112.1 df=2 p<0.001				
Method of SH*						
SI & SP	3 (2.1)	44 (7.1)	11 (13.3)	14 (5.0)	15 (4.1)	56 (7.5)
SP	100 (69.9)	478 (76.9)	42 (50.6)	205 (73.2)	246 (66.9)	568 (76.0)
SI	40 (28.0)	100 (16.1)	30 (36.1)	61 (21.8)	107 (29.1)	123 (16.5)
		χ^2 = 37.0 df=4 p<0.001			χ^2 = 26.4 df=2 p<0.001	

*Chi squared test does not include unknown as a category.*Unknown data: 16 patients had no data on psychosocial assessment, and 14 had no data on method of self-harm.*

5.9 Diagnostic categories

Of patients who were assessed and given a diagnostic category (60% of patients), just under a third (29%) were classed as having an affective disorder, 18% a personality disorder and 3% with psychosis (Figure 10). Conditions described in "Other" predominantly included substance misuse (49%). Other diagnoses also included ADHD (6%) anorexia nervosa (0.5%) and bulimia (0.5%).

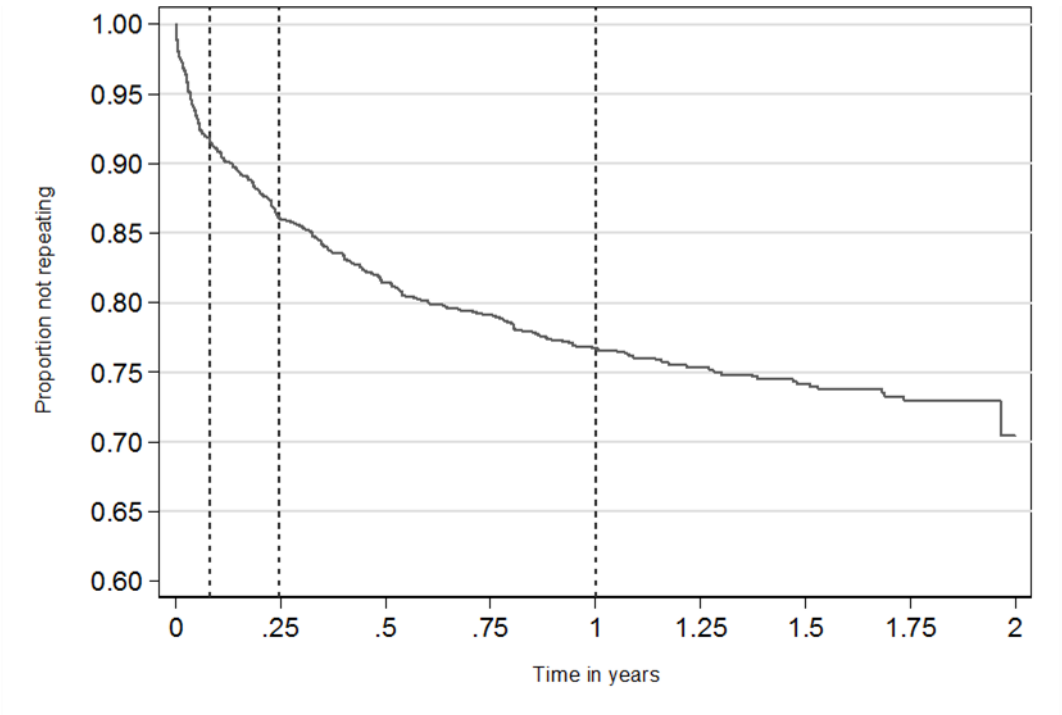
Figure 10. Diagnostic categories of people presenting for self-harm in 2016 at Bristol Royal Infirmary



5.10 Repeat self-harm

In 2016 a total of 1,142 people presented to the Bristol Royal Infirmary. Of those people, 171 (15.0%, 171/1,142) made a repeat attempt within 2016. This figure is different to that of 2015, when 18.6% of patients repeated within-year. This proportion is the within year repetition rate. However, the within year repetition rate fails to account for the fact that patients will have been followed up for different lengths of time, some patients presenting in January 2016 will have had 11 months in which to repeat self-harm while others presenting in December will have only been followed up for a few days. By using data from people presenting to the BRI in 2015 and followed up until the end of 2016, everyone, even those presenting in December 2015, will have had a full year in which they could have made a repeat presentation.

Figure 11. Proportion of patients repeating their self-harm, Jan 2015 - Dec 2016



In 2015, 1055 people had an index attendance. Within 1 year 23.2% (245/1055, 3rd dotted line Figure 11) had a repeat self-harm attendance (Figure 11). Looking at more immediate time periods, the rate of repetition was 8.2% (87/1055, 1st dotted line Figure 11) within 30 days and 13.8% (146/1055, 2nd dotted line Figure 11) within 90 days following an index presentation. This illustrates that risk of repeat self-harm persists well after the first episode but that risk is greatest in the months immediately after presentation to hospital. Roughly two in every three (59.6%) episodes of repeat self-harm occurred within 90 days of the initial presentation.

5.11 Suicide (data up to 2015, this section of the report has not yet been updated for 2016)

Probable deaths from suicide (hereafter referred to as suicides) that occurred after an episode of hospital presenting self-harm were identified from the Avon Coroner's records. Altogether, 5 (0.5%, 5/1055) patients who presented to the hospital services following self-harm in 2015 went on to die by suicide. These numbers are provisional and likely to change over time. The average time from presentation to death of the 5 people dying from suicide was 63 days (range 5 to 192). Four patients were male and one was female, with a median age of 46 (range 21-50). All but one of these patients used hanging as a method of suicide.

Table 8. Characteristics of episodes that resulted in probable suicide compared to those with a non-fatal outcome at the BRI

		Non-fatal	**Suicide**
		n=7808	**n=57**
Age	Median	31	40
	range	7-96	16-87
Gender	Male	3042 (39.1)	33 (57.9)
	Female	4732 (60.9)	24 (42.1)
Method	SI&SP	592 (7.6)	5 (8.8)
	SP	5569 (71.3)	39 (68.4)
	SI	1584 (20.3)	13 (22.8)
	Unknown	63 (0.8)	0 (0.0)
Matrix risk	Green	1326 (17.0)	3 (5.3)
	Amber	3919 (50.2)	26 (45.6)
	Red	714 (9.1)	10 (17.5)
	Unknown	1849 (23.7)	18 (31.6)
Psychosocial assessment	Yes	4468 (58.1)	41 (75.9)
	No	3218 (41.9)	13 (24.1)
Self-discharge	Yes	1172 (15.0)	7 (12.3)
	No	6636 (85.0)	50 (87.7)
*Personality disorder**	Yes	1603 (34.6)	5 (13.5)
	No	3033 (65.4)	32 (86.5)
*Psychosis**	Yes	256 (6.5)	4 (11.1)
	No	3670 (93.5)	32 (88.9)
*Suicide intent score**	Mean	8	14

**Data only available for those patients who had a psychosocial assessment.*

Overall, we have identified 57 people who attended the BRI following self-harm who subsequently died by suicide. The characteristics of these people are described in Table 8. Patients who went on to have a fatal outcome are older, more often male, have higher matrix risk categorisation and more likely to have a psychosocial assessment than the general self-harm patent population. None of the people who had a fatal outcome used hanging as a method when presenting to hospital but 29.8% (17/57) used this method during their fatal episode.

There was some statistical evidence to suggest the level of psychiatric morbidity (based on diagnostic categories assigned at psychosocial assessment) was different between self-harm patients who had a fatal outcome compared to those with a non-fatal outcome. The prevalence of personality disorder appeared to be higher in non-fatal compared to fatal episodes (prevalence nonfatal vs. fatal: 34.6% vs. 13.5%). However, due to the small numbers of events this should be interpreted with caution. There was also a trend for an increased prevalence of psychosis in those who died by suicide (prevalence in nonfatal vs. fatal: 6.5% vs. 11.1%) but this finding was consistent with chance (p=0.268). When recorded, those episodes that resulted in a fatal outcome had a higher average suicide intent score (mean=14) compared to non-fatal episodes (mean=8).

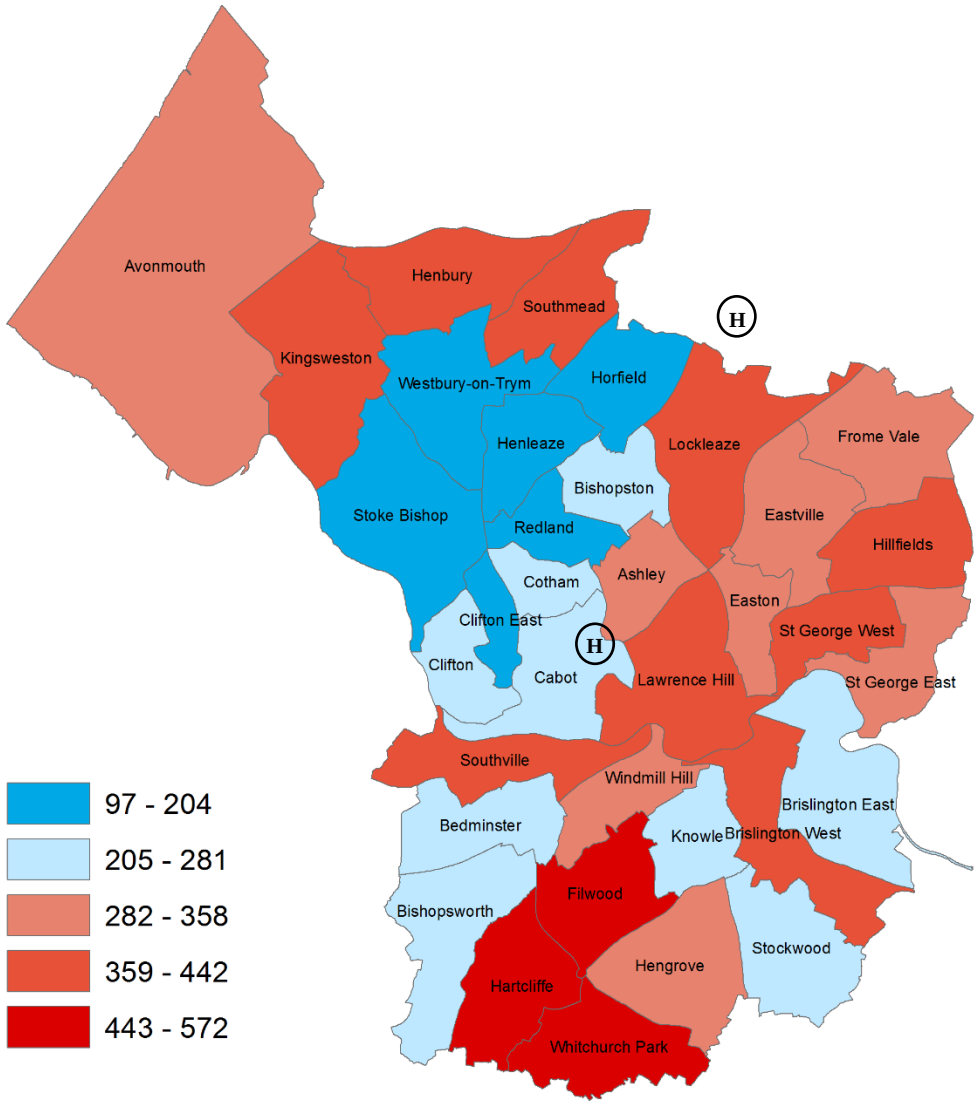
5.12 Geographic distribution of self-harm in Bristol (based on data from the 2015 report)

The detailed data recorded on the register includes information regarding the postcode of patients' residence. Using these data, in 2015 we produced a map detailing the different geographical areas (wards) in Bristol and the frequency with which people present to hospital following self-harm (Figure 12). Areas shaded darker in Figure 12 denote places where a greater number of people are presenting to hospital following self-harm. The data for this diagram are from April 2013 to March 2014 as this is the only period during which we had a full calendar year of data from both hospitals in Bristol. The two "H" symbols in Figure 12 indicate the location of the two major acute hospitals in Bristol (BRI and Frenchay) at the time.

Overall, 1133 people had an episode of self-harm in the areas outlined in the map. The combined population aged 16 and over for the areas outlined in the map was 359,644 (based on 2014 data – see http://profiles.bristol.gov.uk/). The crude rate of self-harm in Bristol was therefore roughly 315 per 100,000 (1133/359,644x100,000). This rate is similar to previously published registry based estimates from the multicentre study (Bergen et al. 2010 BJPsyc) for Oxford (317 per 100,000), Derby (382 per 100,000) and Manchester (405 per 100,000). The data presented in the map represent crude rates and do not account for the age/sex structure of the different areas populations.

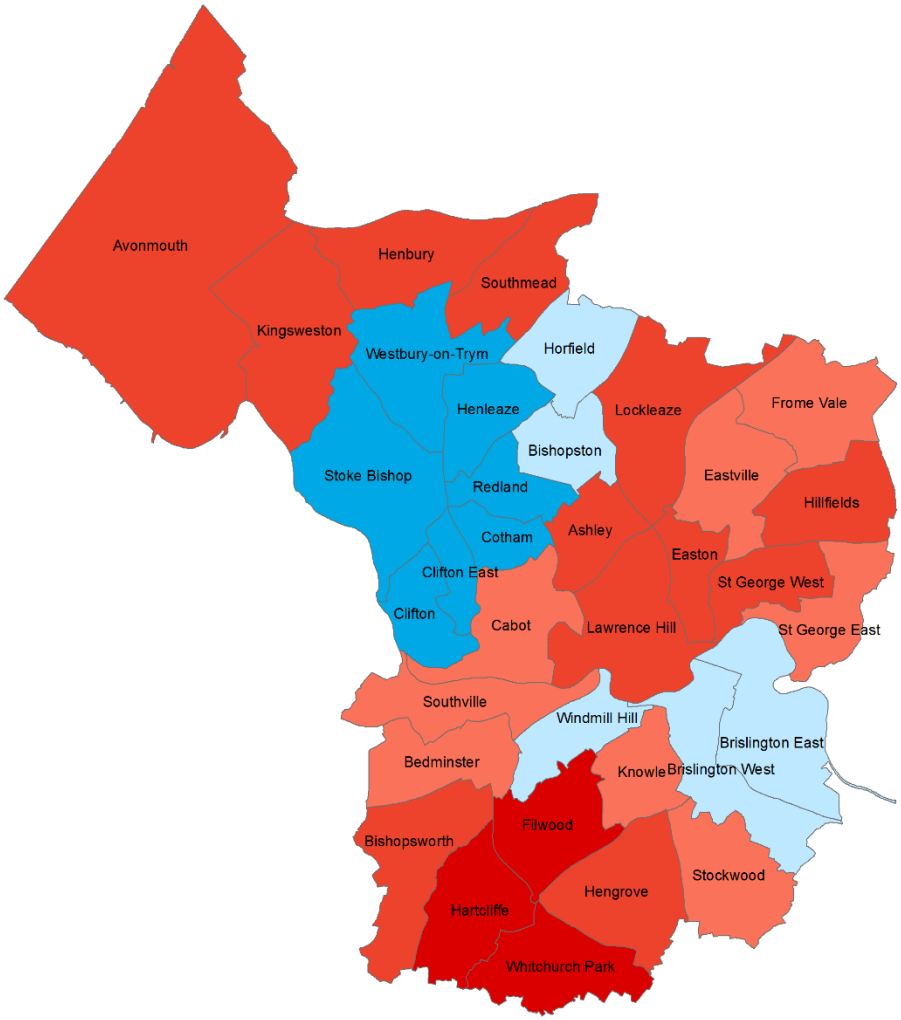
Areas that appear to have a higher incidence of self-harm include those in the southern wards of the city. The three wards with the highest rates of self-harm were located in Whitchurch Park, Filwood and Hartcliffe wards in Bristol. The estimated rate in Whitchurch park was 572 per 100,000 (95% CI 423 - 796) compared to the lowest rate in Henleaze of 97 per 100,000 (95% CI 42 - 192). The factors driving these geographic variations in the incidence of self-harm will be investigated further in subsequent analyses of the registry data.

Figure 12. Crude rate of self-harm per 100,000 of the population across wards in Bristol, April 2013 to March 2014



The various wards in Bristol are made up of a number of lower super output areas (LSOA). Each LSOA is linked to a deprivation score based on the Index of Multiple Deprivation (IMD) 2015. The IMD score is based on a number of factors including income, employment, health, education, housing, crime and living environment. Median IMD scores based on the individual LSOA within a ward are demonstrated in Figure 13. There is a marked similarity between those wards with a higher rate of hospital presenting self-harm and those with a higher median IMD score.

Figure 13. Median score on the Index of Multiple Deprivation in 2015 across wards in Bristol



5.13 Domestic Violence

In January 2016, an additional domestic violence question was added to the data collection form. Roughly 10% of episodes were indicated to be in patients who had experienced domestic violence. A larger proportion of these were seen in women than men, and in non-Caucasian individuals. There was a large amount of data which was coded as being unknown or missing.

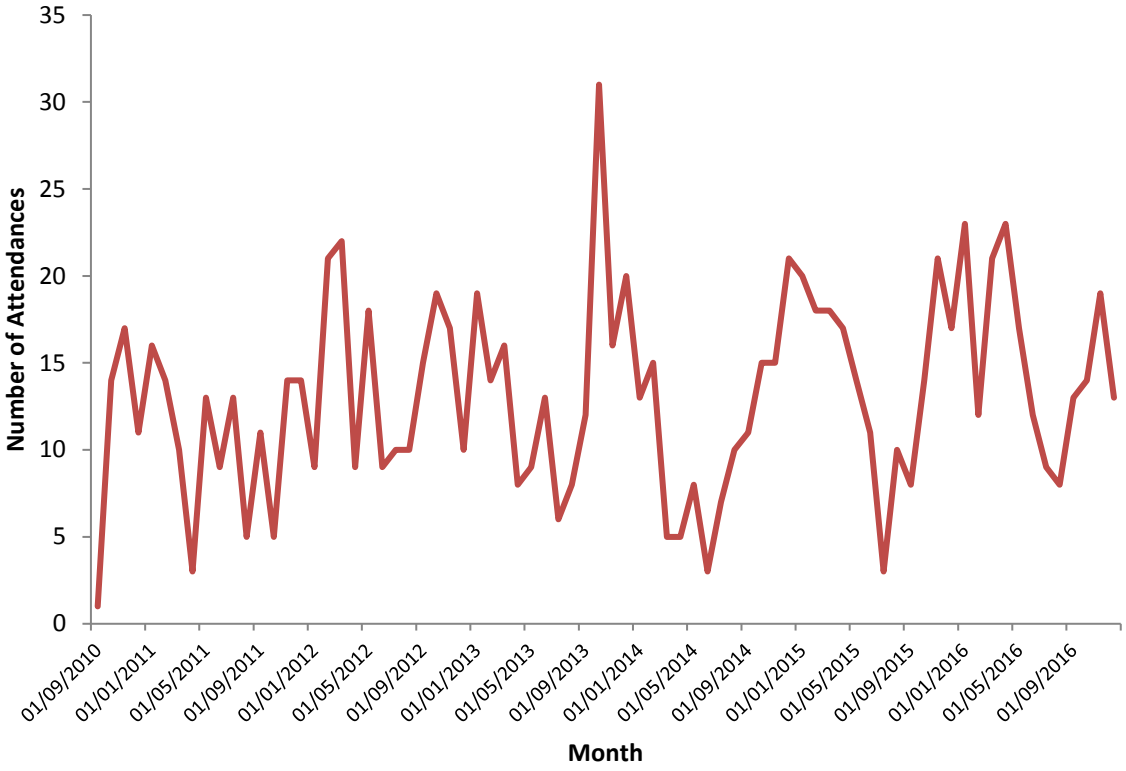
Table 9. Domestic violence data collected in 2016 at the BRI

	Yes (n=147)	**No (n=112)**	**Unknown/missing (n=1276)**
Median age	30	27	30
Male	24 (4.6)	40 (7.7)	459 (87.8)
Female	123 (12.2)	72 (7.1)	816 (80.7)
White	122 (9.2)	98 (7.4)	1106 (83.4)
Mixed	5 (12.2)	3 (7.3)	33 (80.5)
Asian	3 (12.0)	1 (4.0)	21 (84.0)
Black	4 (10.8)	3 (8.1)	30 (81.1)
Other (eg Chinese)	0 (0.0)	2 (20.0)	8 (80.0)
Not Known	13 (13.5)	5 (5.2)	78 (81.3)

5.14 Self-harm amongst students

There were 994 episodes of self-harm in students since the inception of the register (2010-16) (Figure 14); these episodes account for 11% of attendances. Self-harm attendances were the second highest in 2016 (12%) compared to previous years (range 8-11% in 2013-15) The majority of students were aged <25 years (90%) and were female (81%).

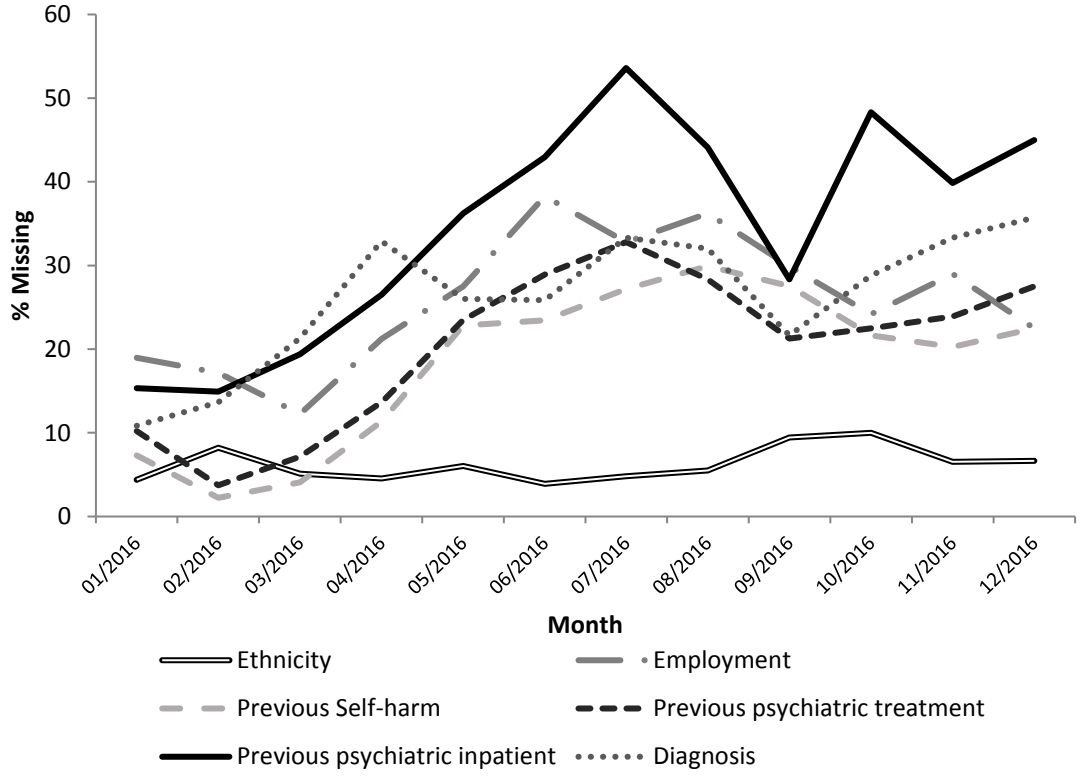
Figure 14. Number of self-harm attendances by students per month 2010-2016



5.15 Data quality

The quality of the data collected as part of the register is generally very good. For this report, we looked at the level of missing data over the last 12 months for variables where over 5% of the main data variables were missing. Since the start of this year there has been an increase in the percentage of missing data (Figure 15).

Figure 15. Percentage of missing data in 2016



6. STITCH Objectives

6.1 Time trends in key indicators

STITCH (Services and Trusts Integrating To Improve Care in Self-Harm) is one of Bristol's Health Integration Teams (HITs), led by Salena Williams. The group aims to work towards reducing the incidence of self-harm and improve services for these high risk patients within the Bristol area. A number of key indicators have been focused on as part of the work of the STITCH group and the annual prevalence of these indicators is described in Table 10.

The number of self-harm attendances rose in 2016 similar to the levels observed in 2013 and 2014. The use of TCA in overdose fell from a high in 2014, but levels are still at the second highest level since the inception of the register. The proportion of people receiving a psychosocial assessment was higher than previous years,

though similar to the rate in 2015. This step change in practice is likely related to the expansion of liaison services which occurred towards the end of 2014. Medical admission rates fell in 2016. The proportion of red matrix risk patients being medically admitted fell from 48.2% in 2014 (70.6 in 2015) to 42.2% in 2016. The proportion of patients admitted to ITU were similar to 2015 but lower than previous years, and LOS has remained stable.

Table 10. STITCH group's key indicators over time

	2011	**2012**	**2013**	**2014**	**2015**	**2016**
No. of attendances (n)	1,494	1,402	1,538	1,540	1,491	1,535
Use of TCA's in overdose (n [%])	50 (4.23)	44 (3.99)	33 (2.78)	65 (5.31)	49 (4.24)	59 (4.87)
Psychosocial assessment (%)	56.41%	55.47%	58.59%	57.09%	64.91%	64.1%
Medical admission (%)	64.66%	63.27%	64.76%	65.26%	67.47%	61.89%
ITU admission (%)	2.28%	3.49%	2.22%	3.92%	1.4%	1.47%
Self-discharges (%)	18.41%	13.77%	14.3%	15.65%	11.74%	12.31%
LOS (days)*	3.06	3.63	2.37	2.14	2.39	2.01
Within year repetition (%)	16.20%	16.98%	19.72%	18.48%	18.00%	15.00%
Suicide within a year (n)**	3	6	5	6	5	

*Excludes outliers: <0 or >10, only includes admitted patients, and is based on date of attendance to date of discharge. ** Figures may change over time

6.2 Economic evaluation of recent investment in BRI Liaison services

NIHR CLAHRC West have carried out an economic evaluation of the recent extension of Liaison Psychiatry Service (LPS) operating hours at the BRI. A £250,000 investment from the CCG was used to recruit additional staff members. This enabled the team to extend Liaison Psychiatry working hours from 9am to 5pm Monday to Friday to 8am to 10pm 7 days a week. This facilitates the assessment of a higher proportion of patients in a more timely manner.

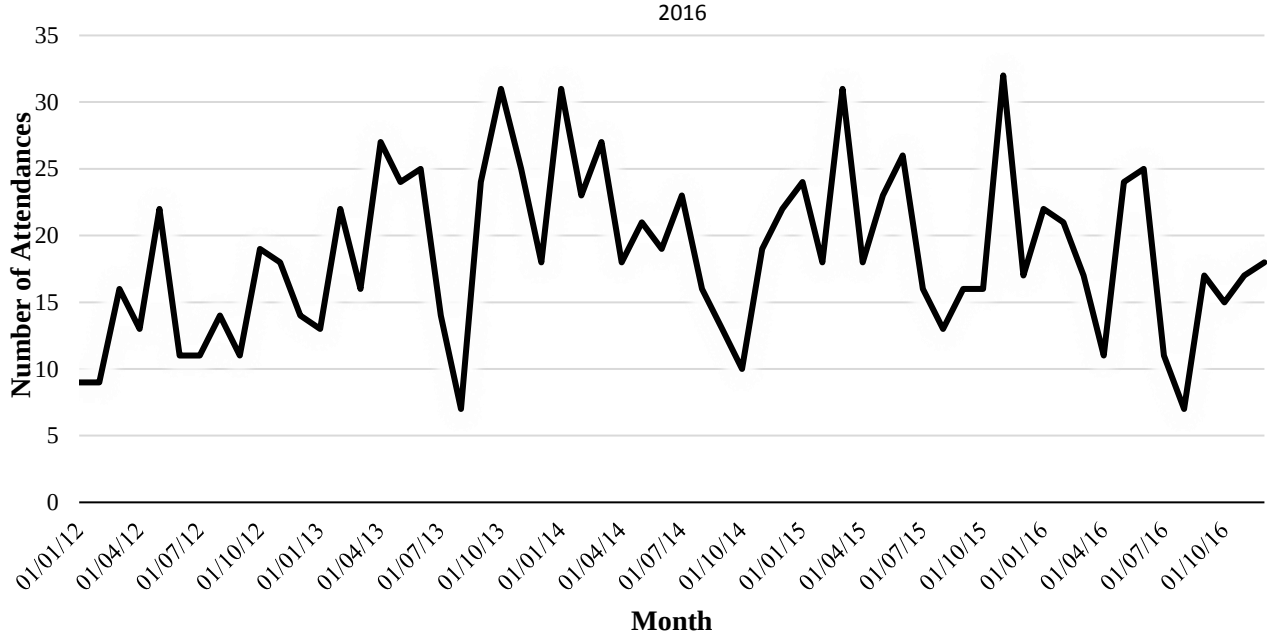
The evaluation showed improvements in service provision (more patients now receive psychosocial assessments, waits for assessments have declined as have levels of self-discharge). The mean cost per patient attendance was marginally lower after the intervention (-£84; 95%CI: -£254 to £77). The extended LPS appear to have had a favourable effect on the management and service outcomes for self-harm patients. The additional cost might be partially offset by more efficient assessment and discharge. The wider impact of extended LPS on other hospitalised patients requires further evaluation.

7. Data from the Child and Adolescent Mental Health Service (CAMHS)

Data collected by CAMHS at the Bristol Children's Hospital on self-harm presentations is available up to the end of December 2016. There were 295 attendances to CAMHS services in 2016. There have been on average 222 presentations a year to the Children's Hospital (Figure 16). Females accounted for a higher proportion (87%) of presentations in the Children's Hospital when compared to the BRI (63%).

Overall, methods of self-harm were dissimilar in presentations to the Children's Hospital in 2016 with self-poisoning (only) accounting for 65% in the Children's Hospital and 73% at the BRI. However, using both self-poisoning and self-cutting was more prevalent in children (13%) than adults (6.5 %).

Figure 16. Number of self-harm attendances per month at the Bristol Royal Hospital for Children, 2012-2016



The characteristics and levels of patient care varied considerably between people presenting to the Children's Hospital and those presenting to adult services (Table 11). Both the proportion of patients who were medically admitted and the proportion who receive a psychosocial assessment were far higher in Children's Hospital. The prevalence of previous self-harm was lower while the proportion in contact with psychiatric services was higher than the adult population.

Table 11. Comparison of clinical care received by children presenting to Bristol Children's Hospital vs adult patients at the BRI

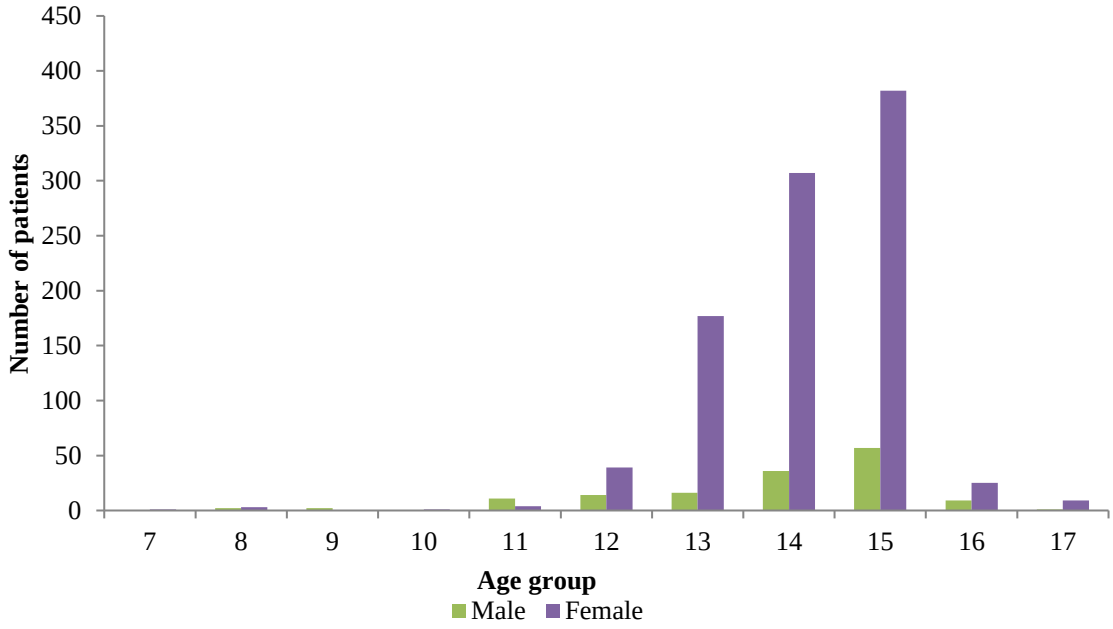
	BRI	Children's
Medical Admission	63%	91%
Psychosocial assessment	66%	96%
Previous self-harm	81%	49%
Current psychiatric treatment	35%	44%

The percentage of medical admissions increased by 8% in 2016 compared to 2015. The proportion of patients who receive a psychosocial assessment increased by 14% to 96% in 2016. The proportion of patients who had previously self-harmed decreased by 9% in 2016 and the proportion of patients that were receiving psychiatric treatment at the time of the episode has decreased by 7%. The medicines most commonly taken in overdose by children are shown in Table 12. Figure 17 shows the age/gender distribution of self-harm patients presenting to the Children's Hospital.

Table 12. Most prominent drugs that were taken in an overdose by children and adolescents in 2016

Drug	Percentage of episodes that ingested drug in an overdose
Paracetamol	63%
Ibuprofen	18%
Co-codamol	6.8%

Figure 17. Number of patients by gender per 1 year age group



8. Acknowledgements

The surveillance register is currently supported by small grants from NHS Bristol and AWP NHS Trust. We are grateful for the continuing advice we receive from staff working on the Oxford Monitoring System for Attempted Suicide and the Manchester Self-Harm (MaSH) project in establishing the Bristol register. We would like to thank: all members of the Emergency Department Staff and the Liaison Psychiatry team at the

Bristol Royal Infirmary and Southmead hospitals for helping with the project and recording relevant data; Pete Shiarly, Olive Bennewith and Robert Carroll for their help establishing the register; Chris Davies, UHB, for help setting the register up within UHB system.

The register is now a key part of the Bristol Health Partners (BHP) supported HIT (Health Improvement Team) – Services and Trusts Integrating to Transform Care in Self-Harm, "STITCH".

Appendix – Data collection sheet

Data collection sheet (version 4 – 04/01/2016)

1.Surname.....

Forenames .....

2. Address .....
.....
..... Postcode .....

3. Sex 1 Male 2 Female

4. DoB .....

5. Ethnicity
1 White 2 Mixed 3 Asian
4 Black 5 'Other' (e.g. Chinese) 9 N/K

6. Occupation……..

7. (a) Date of attendance.....
(b) Time of attendance.....
8. (a) Date seen at triage/'see & treat.....
(b) Time seen at triage/'see & treat.....
9. (a) Date seen by doctor/ENP.....……
(b) Time seen by doctor/ENP.....……..

Where applicable:-
(c) Date of self-discharge.....
(d) Time of self-discharge……..
(e) Actions taken.....
(f) Was self discharge before triage? YES NO
(g)Was self-discharge before seen by doctor? YES NO

10a. What type of presentation was this?

1 = Self-harm 2= Suicidal ideation

11a. Self-poisoning YES NO

Please state all drugs taken Number of tablets
....
....
....

11b. Self-injury YES NO

11c. What was the category of self-injury (Select all that apply)

1 Cutting/laceration arm 2 Cutting/laceration non-arm
3 Stabbing 4 Hanging 5 Gassing
6 Jumping 9 Other

Q11d) Give details of the self-injury (esp site / need for stitches).....
....
……
..
……
..

12. Date/time of O/D or S/I .....

b) If Paracetamol taken, what were the blood levels
……
c) Date/Time bloods taken…….

di) Was Parvolex given? YES NO N/K

13a. Had alcohol been consumed as part of the act or within 6 hours of the act?

YES NO N/K

b) If yes, approximate amount taken (units)……

c) Had illicit drugs been used as part of the act or within 6 hours of the act?

YES NO N/K

Please state all illicit drugs taken Quantity taken
....

14. Precipitating Problem(s)
1.
2.
3.

15. Physical illness? YES NO N/K
If yes, what is this?…….....

16a. Marital status

1 Single 2 Married 3 Widowed
4 Divorced 5 Separated 9 N/K

b) Cohabiting with partner, irrespective of marital status

YES NO N/K

c) Has the patient experienced domestic violence?

YES NO N/K

d) Is the patient LGBT?

1=Heterosexual 2=Lesbian, gay or bisexual
3=Transgender 9=NK

17. Living circumstances Ring first applicable no. only
1 = Alone
2 = With family (including partner) or other (e.g. friends)
3 = Other ***Please specify***……..
9 = NK

18. Employment status
1 Employed (incl. part-time)
2 Unemployed (seeking employment)
3 Retired
4 Full-time student
5 Other ***Please specify***.....
6 Sickness benefit
9 N/K

19. Admission to a hospital bed? YES NO N/K

1 OBS 2 ITU 3 Other

c) Time of admission.....

21. Was the Matrix completed? YES NO

22. Who completed the Matrix? .....

23. Matrix risk category assigned: Green/Amber/Red/NK

24ai. Date of referral for psych assessment.....
aii. Time of referral for psych assessment.....

bi) Who carried out the initial psych assessment?

1 Psychiatrist (Consultant/SpR/Senior ST/STT)
2 Liaison Nurse
3 Joint assessment
4 Other professional ***Please specify***.....
0 Not assessed 9 N/K

bii) Date of initial psychosocial assessment.....
biii) Time (start) of initial assessment.....
biv) Where initial assessment was carried out…..……
bv) Beck Suicide Intent Scale

a) Score 1 ……. b) Score 2 ……. c) Total ….. .. d) N/K

ci) Use of the Internet

YES NO N/K
cii) If YES, how?

25) Was there a subsequent psychosocial assessment?

YES NO N/K

26) If yes, to subsequent psychosocial assessment:-

1=MHAct assessment
2= Crisis Resolution and Home Treatment team assessment
3=Other

27) If yes to 1 or 3 above, *Please specify*:-
……

28. Patients not given a psychosocial assessment
0 Not identified by team
1 Policy decision not to assess
2 Took own discharge
3 Refused assessment
4 Other reason (eg. inpatient), **If other, describe (28a)**……
8 Not applicable (i.e. assessed)

29. Was the patient assessed under the MH Act?

YES NO N/K

30. If yes to 29, which Section was applied? ...…….....

31. Has patient made any previous attempts?(O/D or S/I)

YES NO N/K

32. a) How long ago was the last episode of self-harm?
…….....……..……

b) What method was used at that time?.....
…….

33. At the time of attendance was the patient receiving psychiatric treatment?

YES NO N/K

If yes, please √ box, as appropriate, and name service e.g. Callington Road
Inpatient .....❑
Bristol Intensive team .....❑
Another community team..... ❑
(i.e. had actually been seen by a member of a psychiatric team and has further appointments)
Other services (please list)……...……..❑
Additional information:…….

34. Current psychiatric diagnosis (if any)

YES NO N/K

Diagnosis .....

34. a) Diagnostic Group/Diagnosis

0 not Assessed 1 Affective 2 Personality
3 Psychosis 4 Organic5 Somatoform
6 Other State

35. Drug/alcohol use?

YES NO N/K

36. Has the patient received previous psychiatric treatment?

YES NO N/K

37. Previous in-patient psychiatric treatment

0 None
1 I.P. within previous year
2 I.P. before last year
9 N/K

38. Other previous psychiatric treatment
0 None
1 O.P./CMHT within previous year
2 O.P./CMHT before last year
3 Other services (please list)…….
9 N/K

39. Outcome of current episode (select more than one if appropriate). Please √ box, as appropriate, and if psychiatric referral, name service e.g. Callington Road, Central Assessment and Intervention Team)

Psychiatric inpatient.....❑
Bristol Intensive team .....❑
Another community team.....❑
Self-harm clinic …….....❑
Alcohol nurse service….....❑
Discharged home/GP care (only).....❑
Social Services .....❑
Voluntary Agency (*specify*) .....……❑
Custody (Prison/Police) .....……..…..❑
Took own discharge .....….....❑
Died .....….....❑
Crisis house …….....….....❑
Other services (please list)…….....❑
Additional information:……..

40. a) Date of discharge .....
b) Time of discharge.....

41a) Re-attendance for same episode: YES N/A.
If yes: b) Reason for representation……..
c) Date of representation:……..
d) Time of representation:…….
42. Is there a care plan for this patient (to discuss frequent attendance)?

YES NO N/K

If yes, when was this (date)?:……