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Authors	Griffin, Eve;Murphy, Catherine;Perry, Ivan J.;Lynch, Brenda;Arensman, Ella;Corcoran, Paul
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Acute hospital reconfiguration and self-harm presentations: A before-and-after study

Authors: Eve Griffin[1*], Catherine Murphy[1], Ivan J Perry[2], Brenda Lynch[2], Ella Arensman[1,2], Paul Corcoran[1,2]

[1]National Suicide Research Foundation, Cork, Ireland.

[2]School of Public Health, University College Cork, Ireland

*Corresponding Author:

Dr Eve Griffin,

National Suicide Research Foundation,

4.35 Western Gateway Building,

University College Cork,

Ireland.

evegriffin@ucc.ie

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Abstract

Background: The evidence for improved patient outcomes following acute hospital reconfiguration is limited.

Aims: We assessed the impact of the reconfiguration of acute services within a hospital group in terms of the number and clinical management of self-harm presentations.

Methods: The study was conducted across the three Mid-Western regional hospitals during 2004-2014. Reconfiguration in April 2009 involved two hospitals reducing the operation of their emergency departments (EDs) from 24 to 12 hours. We used Poisson regression analysis of data from the National Self-Harm Registry Ireland to assess change in the hospital burden and clinical management of self-harm associated with the reconfiguration.

Results: We observed that the cumulative decrease in self-harm presentations at the two reconfigured hospitals was of a similar magnitude to the increase observed at the larger hospital. Despite this large increase in presentations, there was only a small increase in admissions. Reconfiguration of hospital services was also associated with changes in the provision of assessments for self-harm patients.

Conclusions: There is evidence to suggest that acute hospital reconfiguration of impacts on patterns of patient flow. Findings have implications for those implementing reconfiguration of acute services.

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Introduction

Health services in Ireland and the United Kingdom have developed strategies to reduce the number of acute hospitals [1, 2]. This has involved the centralisation of services to 'centres of excellence' along with the reconfiguration of smaller hospitals to urgent care centres – with reduced emergency department hours. These reconfigurations aim to improve quality of care and access as well as to provide financial savings, however the evidence base for improved patient care and outcomes is limited [3]. Little reference is made in these strategies to acute mental health services, yet presentations to hospital emergency departments (EDs) involving self-harm are an important consideration. Previous research has highlighted the variation in provision of recommended management and treatment options for self-harm between hospital sites [4, 5]. Reconfiguration processes may further impact on the management of patient groups as well as on neighbouring hospitals. Of the eight hospital groups in Ireland, the Mid-Western Hospital Group began the reconfiguration of acute hospital services in April 2009, involving its three regional hospitals.

We aimed to assess evidence of the impact of this reconfiguration on each hospital in terms of the number and clinical management of self-harm presentations.

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Methods

The study was conducted in the three Mid-Western regional hospitals at Limerick (Hospital A), Ennis (Hospital B) and Nenagh (Hospital C). The reconfiguration in April 2009 involved Hospitals B and C reducing the operation of their EDs from 24 to 12 hours (8am-8pm), while services at Hospital A remained unchanged (see table 1). As part of the National Self-Harm Registry Ireland, data were recorded relating to all self-harm presentations made by persons aged at least 18 years during the period January 2004 to April 2014, using previously described definitions and standard operating procedures (6). The National Research Ethics Committee of the Faculty of Public Health Medicine, Dublin granted ethical approval for the National Self-Harm Registry Ireland.

We used Poisson regression analysis to assess the change in the hospital burden and clinical management of self-harm post reconfiguration. The monthly number of presentations was the unit of analysis for the hospital burden outcomes. Analysis of individual-level data was used for the clinical management outcomes. This provided incidence rate ratios (IRRs) and their 95% confidence intervals to assess the impact of the reconfiguration on the management of self-harm patients. Adjustment was made for clustering in the data associated with multiple presentations by self-harm repeaters. All analyses were performed using Stata version 13.

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Results

From January 2004 to April 2014 there were 9,139 self-harm presentations to the EDs of the three hospitals. Hospital A received the majority (n=6,872; 75%), with Hospitals B and C receiving 1,296 (14%) and 971 (11%) presentations, respectively. Most presentations involved women (53%) and 79% involved 18-44 year-olds. Method of self-harm was usually drug overdose (59%) or self-cutting (17%).

The reconfiguration was associated with a marked increase in the rate of self-harm presentations at Hospital A (+19 per month). This increase was approximately equivalent to the decreases at Hospitals B (-8 per month) and C (-9 per month). Presentations from outside the hospital county accounted for most of the increase at Hospital A (+13 per month). Almost all (92%) of these cross-catchment area cases originated from the counties of Hospitals B and C. In addition, the reconfiguration was associated with an increase in Mid-Western hospital group residents presenting with self-harm to hospitals outside of the region (from 45 to 103 per year).

There was a small increase in the number of admissions into Hospital A despite the large increase in self-harm presentations. The decreases in admissions at Hospitals B and C broadly reflected the decreases in their number of self-harm presentations.

After reconfiguration, self-harm patients presenting to Hospitals A and B were 21% and 15% less likely to be admitted, respectively. However, there was no change in the likelihood of not admitted patients being assessed at these hospitals. Not admitted self-harm patients were more likely to be assessed after reconfiguration at Hospital C (see table 2).

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Discussion

This first study to assess the impact of acute hospital reconfiguration on patterns of self-harm attendances found that the decrease in numbers presenting to hospitals with reduced opening hours led to an equivalent increase at the remaining hospital in the region. Following reconfiguration, patients attending Hospitals A and B were less likely to be admitted for treatment, but not admitted patients were just as likely to be assessed as they were before the reconfiguration. The only observed impact on the provision of psychosocial assessments was a twofold increase at Hospital C.

The findings suggest that reconfiguration does not reduce self-harm presentations overall but shifts the number of cases to the hospital whose services remained unchanged. We found evidence for a change in the management of self-harm patients within the EDs, whether anticipated or in response to the increased attendances. Despite the increase in overall attendances at the larger hospital, there was a disproportionately small impact on hospital admissions. Furthermore, the provision of assessments was unaffected at two of the hospitals and increased at the third hospital following reconfiguration. We don't know if this was as a result of increased resources, as there was no mention of changes to mental health services in the reconfiguration's action plan [7].

In the same region, the reconfiguration of hospital services led to resource changes for stroke patients, a less common but more severe emergency condition. A four-bed stroke unit opened in Hospital A in 2012.This ensured that 55% of patients were admitted to an acute stroke unit, compared to 1% in 2008. As a result of access to this unit, along with a thrombolysis protocol, improvements to length of stay and stroke outcomes have been seen [8].

There are a number of limitations to consider. As this was an observational study, inferences regarding causation cannot be made. It is possible that other confounders contributed to changes observed following reconfiguration. For example, hospital admission following self-harm decreased nationally during this period [9], which could partly contribute to these findings. An assessment of change in adherence to clinical guidelines for self-harm management was not possible as there are no such guidelines in the Irish setting. Our study was limited to self-harm attendances and such observations cannot be generalised to other patient groups.

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It is clear that reconfiguration of hospital services was associated with patterns of patient flow, with greater demands being placed on the unchanged, larger hospital sites. These findings suggest that those with responsibility for planning and implementation of reconfiguration should be aware of such outcomes and ensure that changes in the resources and provision of services be put in place to meet these increased demands.

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Conflict of interest: The authors declare that they have no conflict of interest.

Ethical approval: The National Research Ethics Committee of the Faculty of Public Health Medicine, Dublin granted ethical approval for the National Self-Harm Registry Ireland. The Registry has also received ethical approval from the relevant hospitals and Health Service Executive (HSE) ethics committees. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. For this type of study formal consent is not required.

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References

1. Health Service Executive (2014) Securing the future of smaller hospitals: A framework for development. Dublin: HSE. http://health.gov.ie/wp-content/uploads/2014/03/SecuringSmallerHospitals.pdf

2. National Health Service (2014) Five Year Forward View. London: NHS. https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

3. Imison C (2015) The reconfiguration of hospital services: is there evidence to guide us? Future Hosp J 2:137-141.

4. Bennewith O, Gunnell D, Peters T, et al. (2004) Variations in the hospital management of self harm in adults in England: observational study. BMJ 328:1108-1109.

5. Cooper J, Steeg S, Bennewith O, et al. (2013) Are hospital services for self-harm getting better? An observational study examining management, service provision and temporal trends in England. BMJ Open 3:e003444

6. Perry IJ, Corcoran P, Fitzgerald AP, et al. (2012) The incidence and repetition of hospital-treated deliberate self harm: Findings from the world's first national registry. PloS One 7:e31663.

7. Health Service Executive (2008) Review of acute hospital services in HSE Mid-West: An action plan for acute and community health services. Dublin: HSE. http://www.hse.ie/eng/services/publications/hospitals/Review_of_Acute_Hospital_Services_in_the_Mid-West.pdf

8. Shanahan E, Keenan R, Cunningham N, et al. (2015) Acute stroke unit improves stroke management-four years on from INASC. Ir Med J 108:51-53.

9. Griffin E, Arensman E, Corcoran P, et al. (2016) National Self-Harm Registry Ireland Annual Report 2015. National Suicide Research Foundation.

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Table 1. Characteristics of hospitals involved in reconfiguration.

Hospital	County catchment population (census 2011)	Total ED attendances per year (2014)	Acute psychiatry service
Limerick (A)	191,809	59,881	Crisis service team (4pm-3am Mon-Fri; 9.30am-3am Sat-Sun); out-of-hours on call NCHD
Ennis (B)	117,196	8,638	Crisis service team (4pm-3am Mon-Sun); out-of-hours on call NCHD
Nenagh (C)	70,322	7,729	Dedicated crisis service team (4pm-3am Mon-Sun) from Jan 2006

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Table 2. Hospital burden and clinical outcomes relating to self-harm before and after acute hospital reconfiguration in the Mid-Western Hospital Group, Ireland

	Hospital	Pre n (95% CI)	Post n (95% CI)	Change n (95% CI)	p-value
Presentations per month	A	46.0 (44.3, 47.7)	65.2 (63.2, 67.3)	+19.2 (16.2, 22.4)	<0.001
	B	14.2 (13.3, 15.2)	6.6 (6.0, 7.2)	-7.7 (-8.4, -6.8)	<0.001
	C	12.5 (11.6, 13.4)	3.0 (2.6, 3.5)	-9.4 (-9.9, -8.9)	<0.001
Presentations from outside county per month	A	5.3 (4.7, 5.9)	18.4 (17.3, 19.5)	+13.1 (11.0, 15.5)	<0.001
	B	0.4 (0.3, 0.6)	0.2 (0.1, 0.3)	-0.2 (-0.3, -0.0)	0.046
	C	0.5 (0.4, 0.8)	0.1 (0.0, 0.2)	-0.5 (-0.5, -0.4)	<0.001
Admissions per month	A	29.0 (27.7, 30.4)	32.4 (31.0, 33.9)	+3.4 (1.4, 5.5)	0.001
	B	10.2 (9.5, 11.0)	4.0 (3.5, 4.5)	-6.2 (-6.8, -5.6)	<0.001
	C	9.0 (8.3, 9.8)	2.2 (1.8, 2.6)	-6.9 (-7.2, -6.4)	<0.001
	Hospital	**Pre n (%)**	**Post n (%)**	**IRR (95% CI)**	**p-value**
Patient admitted into hospital	A	1,828 (63.1)	1,976 (49.7)	0.79 (0.75, 0.83)	<0.001
	B	643 (71.8)	244 (61.0)	0.85 (0.77, 0.94)	0.001
	C	568 (72.3)	132 (71.4)	0.99 (0.84, 1.16)	0.874
Not admitted patient received mental health assessment[1]	A	657 (61.5)	1,293 (64.7)	1.05 (0.99, 1.12)	0.126
	B	181 (71.5)	102 (65.8)	0.92 (0.80, 1.06)	0.252
	C	69 (31.7)	41 (77.4)	2.44 (1.83, 3.26)	<0.001

[1] It was recorded that an assessment was conducted if the patient was received a mental health review/ assessment in the ED at the time of attendance

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