

## Effectiveness of a nurse led hospital in-reach team and assertive follow-up of frequent attenders with alcohol misuse complications – a retrospective mirror image evaluation

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### Introduction

Alcohol dependence affects 4% of people aged between 16 and 65 in England and over 24% of the English population consume alcohol in a harmful way. Physical comorbidities are common, including gastrointestinal disorders (in particular liver disease), neurological and cardiovascular disease.<sup>1</sup> It has also been shown that there is a direct dose-response relationship between alcohol consumption and risk of death.<sup>2</sup>

In England, £2.7bn is the estimated alcohol related annual cost to the NHS (in 2006/7 prices).<sup>3</sup> These figures compare with a previously estimated cost of £1.4bn - £1.7bn per annum (in 2001 prices).<sup>4</sup>

Estimates of the number of alcohol-related admissions to hospital are calculated using a method developed by the North West Public Health Observatory (NWPHO). Thirteen conditions are wholly attributable to alcohol consumption and 34 were partially attributable.

In England, in 2010/11 there were 198,900 admissions where the primary diagnosis was attributable to the consumption of alcohol and 1,168,300 admissions to hospital based on both primary and secondary diagnoses.<sup>5</sup> In 2010 there were 8,790 alcohol-related deaths in the UK.<sup>6</sup>

Patients with physical problems related to the use of alcohol or drugs often present to general hospitals in an unplanned, emergency fashion these patients are at increased risk of re-admission. This group of frequent hospital attenders may be difficult to engage but may benefit from more proactive intervention, a more joined-up management approach and the development of an enhanced general hospital alcohol liaison service.<sup>7</sup>

Leeds Addiction Unit (LAU) which is a community specialist drug and alcohol treatment unit has a hospital in-reach team that engage with people admitted to Leeds Teaching Hospitals NHS Trust (LTH) with alcohol and drug related health problems. The service provides specialist assessment, facilitates early discharge from hospital and delivers all aspects of care including assessment, treatment, monitoring and follow-up. The treatment is based on Social and Behavioural Network Therapy (SBNT) with the principal aim of mobilising or developing positive social network support for change in drinking or drug using behaviour.

### Aim

To evaluate the effect of LAU hospital in-reach team in reducing the rate of relapse and hospital service utilization in people with alcohol dependence.

### Method

This is a retrospective cohort study, with a mirror-image design where patients act as their own control. We included all patients who had wholly alcohol attributable admission(s) to LTH during a four-month period between Jan – April 2013 and received treatment from LAU after their discharge.

Data was collected from electronic and paper notes. There were three electronic datasets (LAU hospital activity records, PARIS from Leeds and York Partnership Foundation NHS Trust, and LTH alcohol related admissions dataset obtained from LTH informatics department) as well as another data set from paper triage forms. All the above four data sets were merged together using SPSS.

Primary outcome measures such as number of hospital admissions, number of days in hospital and number of A&E attendance related to the patients who engaged with LAU were analysed to find out any difference in service utilization between 3 months pre and post LAU intervention. (Figure 1).

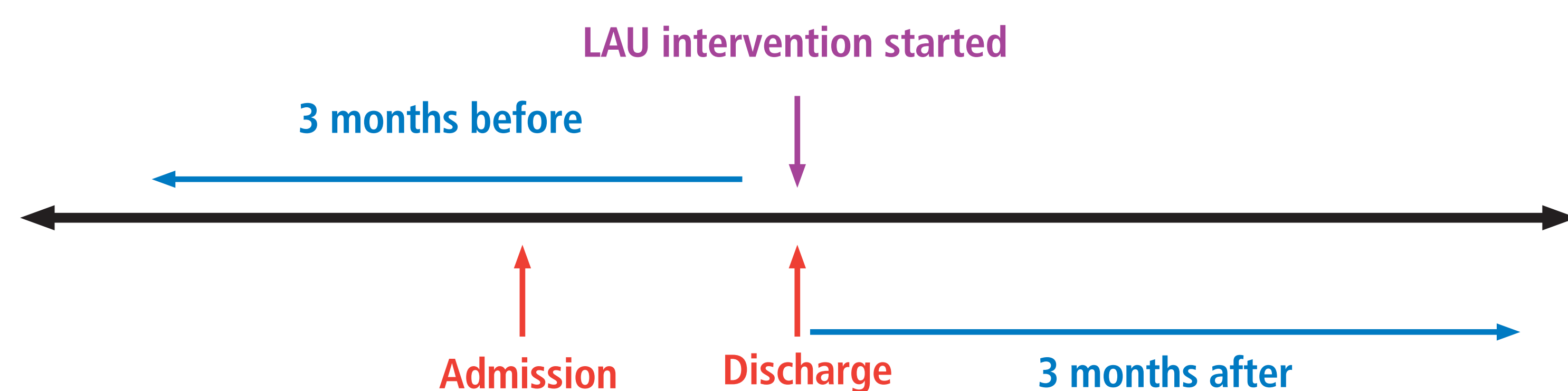


Figure 1. Diagram of the Mirror Image Analysis

### Results

There were 17,212 alcohol related admissions to LTH during the four months study period, with 15,503 partially attributable to alcohol, and 1,711 wholly attributable which was related to 1,145 patients (Mean hospital admissions = 1.49, Mean hospital days= 5.7). LAU saw 286 patients in ≥ one occasion at least during one of their admissions. Of 64 who engaged in alcohol treatment 50 had wholly alcohol attributable admissions. (Figure 2).

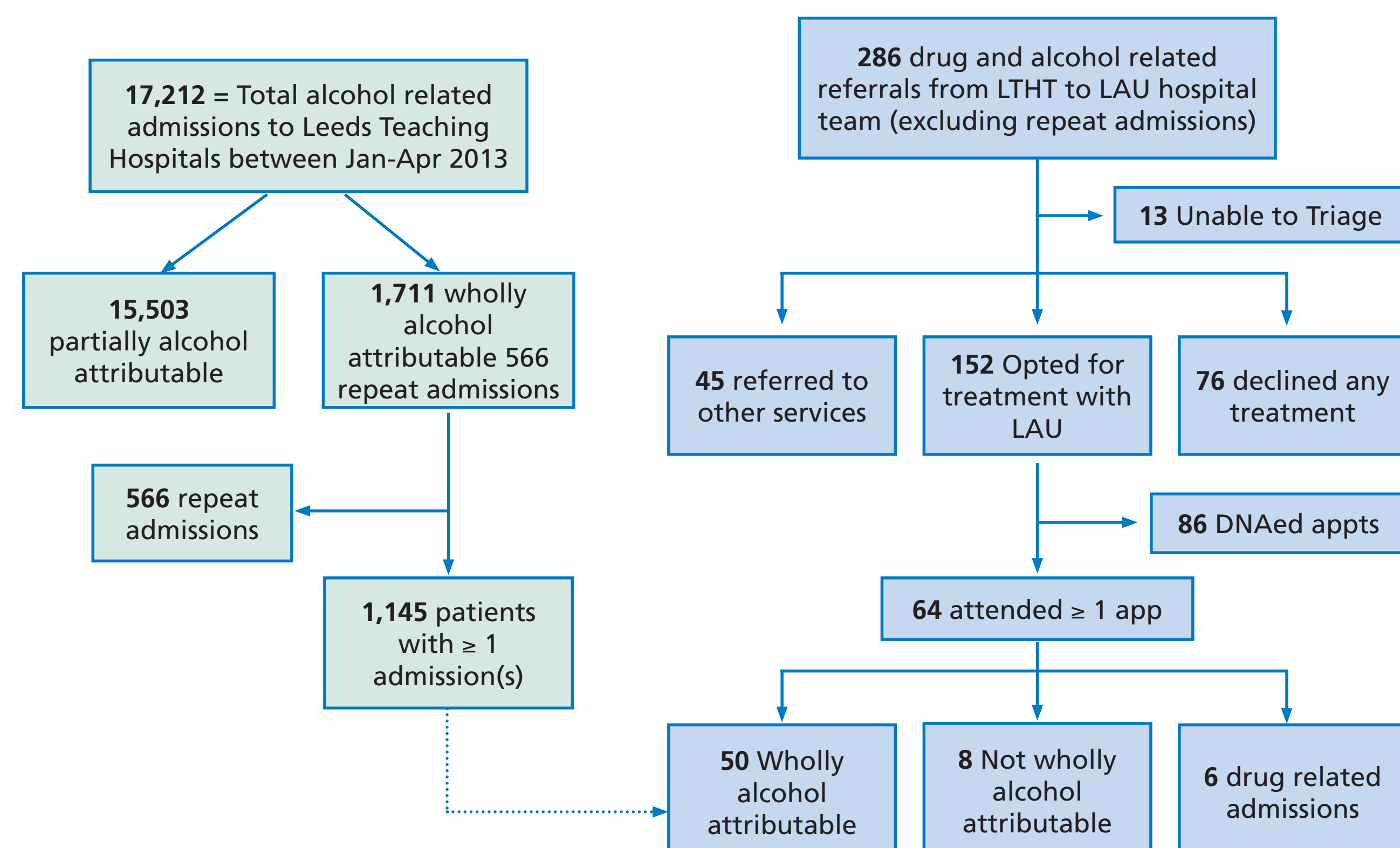


Figure 2. Diagram of data origin.

Of the 1,711 wholly alcohol attributable admissions to LTH 70% were females and 30% males. Nearly half of the admissions were in the age range of 40 - 59. 1299 (75.92%) admissions were to St James Hospital, 398 (23.26%) to Leeds General Infirmary and 14 (0.82%) to other hospitals in Leeds.

The main wards to admit these patients were J26, J22, J29 and L01, which had 11.3%, 11.2%, 11% and 10.8% of admissions respectively.

LAU triaged 286 patients in LTH hospitals during the four months. 222 (77.6%) were referrals from St James hospital, 60 (21.0%) from LGI and for 4 (1.4%) the source of referral was not recorded. Nearly three quarter of patients were seen, or referred from, the following wards: J26 (64, 22.4%), J29 (40, 14.0%), L01 (34, 11.9%), J91 (25, 8.7%), J47 (19, 6.6%), J92 (14, 4.9%) and J22 (14, 4.9%). For 285 (90.2%) patients

the main substance was alcohol and 21 (7.3%) were drug related and for 7 (2.4%) the data was missing. 224 (78.3%) were not in treatment for their substance use at the time of triage and 62 (21.7%) were receiving treatment (19 from LAU and 43 from other services).

### Treatment options after triage:

Out of 286 referrals received, 152 (53.1%) opted for receiving treatment from LAU and were given an OPC appointment. 76 (26.6%) declined treatment and 45 (15.7%) were referred to other services. 13 (4.5%) were not triaged after referral due to different reasons including: patient was too unwell to be assessed, patient self-discharged prior to be seen, patient not on the ward when assessor arrived or patient died in hospital.

Of 152 who agreed engagement with LAU and were given an OPC appointment 64 (43.4%) attended one or more OPC appointments with LAU and 86 (56.6%) did not attend OPC appointment. 64 patients who attended appointment(s), 6 had drugs related problems and 8 had non-wholly alcohol attributable admissions.

### Mirror Image analysis results:

50 patients who had wholly alcohol attributable admissions and attended the appointment(s) with LAU entered the mirror image analysis. We used Wilcoxon Signed Ranked Test which showed statistically significant reduction in service utilization. (Table 1)

Table 1.

Service utilization (50 patients)	3 months Before hospital admission	3 months after LAU intervention	P value
No of hospital admissions	78	41	< 0.001
No of days inpatient	790	146	<0.001
No of admissions to A & E	111	113 (50 were related to only 2 patients)	<0.05

Table 2, a cross-tabular calculation of three outcome measures, shows that 34 (69.4%) patients had fewer hospital admissions 3 months after compared to 3 before, 39 (79.6%) had fewer days in hospital and 33 had fewer A and E attendance (A&E data for one patient was missing).

25 patients showed reduction in all three primary outcomes as had fewer hospital admissions and fewer hospital days and fewer A&E attendances. Only 3 patients had increase in all three primary outcomes.

Table 2.

Change in Number of days in hospital	Change in Number of admissions					
	Fewer	More	Equal	Total		
Fewer	Change in A & E	Fewer	25 (64.1%)	1 (2.6%)	4 (10.3%)	30 (76.9%)
		More	3 (7.7%)	0	2 (5.1%)	5 (12.8%)
		Equal	4 (10.3%)	0	0	4 (10.3%)
		Total	32 (82.1%)	1 (2.6%)	6 (15.4%)	39 (100%)
More	Change in A & E	Fewer	0	2 (28.6%)	0	2 (28.6%)
		More	0	3 (42.9%)	0	3 (42.9%)
		Equal	0	2 (28.6%)	0	2 (28.6%)
		Total	0	7 (100.0%)	0	7 (100.0%)
Equal	Change in A & E	Fewer	1 (33.3%)	0	0	1 (33.3%)
		More	1 (33.3%)	0	0	1 (33.3%)
		Equal	0	1 (33.3%)	0	1 (33.3%)
		Total	2 (66.7%)	1 (33.3%)	0	3 (100.0%)
Total	Change in A & E	Fewer	26 (53.1%)	3 (6.1%)	4 (8.2%)	33 (67.3%)
		More	4 (8.2%)	3 (6.1%)	2 (4.1%)	9 (18.4%)
		Equal	4 (8.2%)	3 (6.1%)	0	7 (14.3%)
		Total	34 (69.4%)	9 (18.4%)	6 (12.2%)	49 (100.0%)

### Conclusion

This mirror-image study shows that patients who engaged in treatment with LAU had less hospital service utilization and reduction in the number of admissions and number of days in hospital.

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