



Community detoxification for alcohol dependence: A systematic review

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Alcohol detoxification in the community: a systematic review

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Community detoxification for alcohol dependence: A systematic review

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Abstract*Issues*

Despite the potential advantages of community detoxification for alcohol dependence, in many countries the available resources are mostly focused on specialist services that are resource-intensive, and often difficult to access due to financial or geographical factors. The aim of this systematic review is to synthesise the existing literature about the management of alcohol detoxification in the community to examine its effectiveness, safety, acceptability and feasibility

Approach

The systematic review was guided by an a priori defined protocol consistent with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement. Cochrane library, Medline, EMBASE, PsycINFO, Global Health and CINAHL databases were searched using appropriate search terms. A qualitative synthesis of the data was conducted as the heterogeneity of study designs, samples and outcomes measured precluded a meta-analysis.

Key findings

Twenty studies with a range of designs were eligible for the review. Community detoxification had high completion rates and was reported to be safe. Compared to patients undergoing facility based detoxification, those who underwent community detoxification had better drinking outcomes. Community detoxification was cheaper than facility based detoxification and generally had good acceptability by various stakeholders.

Implications

For certain kind of patients community detoxification should be considered as a viable option to increase access to care.

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Conclusions

Although the current evidence base to some extent supports the case for community detoxification there is a need for more randomised controlled trials testing the cost effectiveness of community detoxification in comparison with inpatient detoxification.

Key words: Alcohol, dependence, detoxification, community, review

For Peer Review Only

Introduction

The World Health Organization's (WHO) International Classification of Diseases 10th Revision (ICD-10) classifies alcohol use disorders (AUDs) as "harmful use" (pattern of psychoactive substance use that causes damage to health) and "alcohol dependence" [1]. Alcohol dependence (AD), is defined as "a cluster of behavioural, cognitive, and physiological phenomena that develop after repeated alcohol use and that typically include a strong desire to consume alcohol, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to alcohol use than to other activities and obligations, increased tolerance, and sometimes a physiological withdrawal state" [1]. AD, the most severe type of AUD, is not only a direct cause for premature death and disability but is also a risk factor for other communicable and non-communicable diseases [2-4]. The risk of death due to AD is about 2 to 9 times that of the general population [5]. AD also impacts multiple domains of the affected person's life e.g. reduced productivity, job loss or absenteeism, loss of relationships, problems with family roles, vandalism, social drift downwards, and stigma. Overall, AD accounts for 71% of the alcohol attributable mortality burden and 60% a large proportion of the social costs attributable to alcohol [5].

The treatment of AD requires a range of treatment responses most of which should, ideally, take place outside of residential and hospital facilities. This range broadly includes detoxification (to minimise symptoms of withdrawal) and relapse prevention using psychosocial and/or pharmacological interventions. Specialist inpatient care is indicated for patients with severe alcohol dependence and for those patients who experience additional co-morbid health-related problems that may complicate treatment and worsen treatment outcomes. For less severely dependent patients, primary and community-based care is recommended [6]. Thus management of patients requiring "assisted alcohol withdrawal" may occur in inpatient, residential

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3 facilities or even community-based settings including general physicians' practices
4 and patients' homes [6]. For people with mild to moderate dependence, the NICE
5 guidelines recommend an outpatient-based assisted withdrawal programme which
6 involves fixed dose medication regimens, carer overseeing the process with daily
7 monitoring by trained staff, and psychosocial support [6].
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15 Unfortunately, treatment of AUDs have been accorded a low priority, particularly in
16 ~~low resource settings~~ low and middle income countries (LMICs). National alcohol
17 policies and dedicated resources within the health system are still largely missing, or
18 inadequate in these countries which hinders the effective management of patients
19 with AUD and worsens their outcome [7, 8]. Furthermore, the available resources are
20 mostly focused on specialist services that are resource-intensive, and often difficult
21 to access due to financial or geographical factors [6, 7]. Hence the treatment of AD in
22 existing platforms of institutional care in ~~low and middle income countries (LMICs)~~ is
23 both limited by its accessibility, and sub-optimal as community-based care is rarely
24 available despite it being recommended in most cases [6] as both a viable and
25 efficient solution [9].
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40 Community-based detoxification for moderate or severe AD is essentially based on
41 the principle of collaborative care, by involving a range of health professionals who
42 provide services at different stages of treatment (e.g. medical care by a trained
43 doctor, and monitoring by a nurse). The key strengths of community-based
44 detoxification include its effectiveness in improving clinical outcomes, cost
45 effectiveness and acceptability [10]. Furthermore, community-based detoxification
46 increases accessibility and acceptability of treatment, and overcomes facility and
47 resource-related challenges that are often found in low resource settings [11]. All
48 these factors (e.g. cheap, monitoring through primary care) make community
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3 detoxification a particularly good fit for the requirements of low resource settings in
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5 LMICs.
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9 The published literature about community detoxification of AD is sparse and the
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11 synthesis of such evidence is relatively non systematic (i.e. narrative reviews) and
12
13 mostly non recent (i.e. most reviews published in 1990s or early 2000s) [10, 12, 13].
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15 These existing reviews conclude that community detoxification is cost effective but
16
17 cannot entirely replace inpatient detoxification. The aim of the current systematic
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19 review is to synthesise the existing literature about the management of alcohol
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21 detoxification in the community to examine its effectiveness, safety, acceptability and
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23 feasibility. Thus, besides being the most recent such review, it is different from
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25 existing reviews as it follows a rigorously systematic and hence replicable
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27 methodology; and also examines dimensions like acceptability and feasibility along
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29 with the more conventional dimensions like effectiveness. Finally, this review was
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31 conducted as an integral part of the formative research in a project aiming to develop
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33 a community detoxification package for low resource LMIC settings. Hence, the
34
35 review was focused on evidence which had minimal or no involvement of specialist
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37 services (e.g. outpatient detoxification in specialist addiction services was excluded).
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39 Although the management of alcohol dependence might start with detoxification,
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41 successful long-term recovery is dependent on psychosocial interventions that focus
42
43 on building motivation to change, and support changing of maladaptive behaviours
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45 and expectations about alcohol. This review is by no means a comprehensive review
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47 of the management of alcohol dependence but narrowly focuses on just one aspect
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49 of that, namely community detoxification.
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52 53 54 55 56 **Methods** 57 58 59 60

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3 The systematic review was guided by an a priori defined protocol consistent with the
4 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)
5 statement [14]. The following electronic databases were searched: Cochrane library,
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7 Medline, EMBASE, PsycINFO, Global Health and CINAHL. AN1 conducted the
8
9 search using the appropriate search terms under the following concepts: AUD (e.g.
10 Alcohol dependence, Alcohol withdrawal), Detoxification (e.g. Detoxification, Detox)
11 and Setting (e.g. Community, Home). The search strategy for Medline is presented
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13 in Appendix 1.
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21 AN2 and UB independently assessed the titles and abstracts of the studies identified
22 through the search of the electronic databases. If the title and abstract did not offer
23 enough information to determine inclusion, the full paper was retrieved to ascertain
24 whether it was eligible for inclusion. AN2 and UB then discussed their independent
25 selections and arrived at a final list of eligible papers. In case of any disagreement
26 regarding inclusion, a third reviewer (RV) was consulted for a final decision. AN2
27 inspected the reference lists of eligible papers and relevant reviews to include
28 additional eligible papers that were not retrieved by the search of the electronic
29 databases. Finally, AN2 conducted a forward search on Web of Science using the
30 eligible papers to identify studies which might have been missed in the original
31 electronic database search and to identify eligible studies which cited any of the
32 included papers.
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48 *Eligibility criteria:* There were no restrictions on year of publication, gender, and age
49 of the participants. Only English language publications were included. Randomized
50 Control Trials (RCTs), published audits, observational studies, case series and
51 qualitative studies were included while systematic reviews with or without meta-
52 analyses and case reports were excluded. Studies with participants having alcohol
53 dependence and/or alcohol withdrawal with or without comorbid
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3 physical/mental/substance use disorders were included. For inclusion in the review
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5 alcohol dependence had to be diagnosed in one of the following ways: clinical
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7 diagnosis, or according to the International Classification of Disease (ICD),
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9 Diagnostic and Statistical Manual (DSM), any other standardised criteria or any other
10
11 structured diagnostic instrument. Studies were included if they tested any evidence-
12
13 based intervention package designed specifically to treat alcohol withdrawal
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15 syndrome. For a study to be included, the intervention had to be delivered at home or
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17 in primary care outpatient settings. If the intervention was based in a specialist
18
19 addictions centre, it was excluded even if it was delivered to outpatients, unless the
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21 dispensing and monitoring was done through primary care. This was done as
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23 specialist addictions centres are rare in low resource settings and outpatient
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25 monitoring of detoxification in such centres is not feasible because of their poor
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27 accessibility for large sections of the population. If the intervention was based in a
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29 specialist addictions centre, but was delivered at home, it was included. There were
30
31 no limitations to comparison groups and studies were included if the comparison
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33 group was a placebo, treatment as usual, or any other active intervention. Studies
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35 were included if they reported one or more of the following outcomes: initiation and/or
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37 completion of detoxification, abstinence, quantity and frequency of drinking, adverse
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39 effects or events related to detoxification, mortality, costs, alcohol related problems,
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41 uptake of follow up services and treatment satisfaction measured using standardised
42
43 scales. Qualitative studies were included if they explored and/or reported themes
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45 signifying acceptability and feasibility of home detoxification packages.
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50 *Data extraction:* Following PRISMA guidelines, a record was made of the number of
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52 papers retrieved, the number of papers excluded and the reasons for their exclusion,
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54 and the number of papers included. A formal data extraction form was designed for
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56 the papers and guidelines to extract data relevant to the study aims. PE and AN3
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independently extracted the data and any disagreements about extracted data were discussed and resolved.

A qualitative synthesis of the data was conducted as the heterogeneity of study designs, samples and outcomes measured precluded a meta-analysis.

Results

Twenty studies were eligible for the review and these included four RCTs [15-18], two case series [19, 20], three qualitative studies [21-23], six observational studies [24-29], three quasi-experimental studies [30-32], and two mixed-methods studies [33, 34]. Thirteen studies were conducted in United Kingdom (UK) [15-17, 21, 24-28, 30, 32-34], two each in the United States of America (USA) [19, 29], and Australia [22, 31], and one each in Ireland [23], Brazil [18], and Canada [20]. The monitoring of the detoxification was done either at home [15-17, 20, 21, 23, 24, 27, 30-34] or in outpatient settings [18, 19, 25, 26, 29]. Sample sizes ranged from 4-517, and the wide range was due to the range of study designs included in the review. Eighteen studies included both males and females (one each looked solely at males [19] or females [23]), although most (>70%) had predominantly males. The age of participants ranged from 18 to 77 years (mean age for pooled studies being 40 years).

Measurement of alcohol dependence and alcohol withdrawal

The Severity of Alcohol Dependence Questionnaire (SADQ), was used to diagnose alcohol dependence in seven studies [15-18, 26, 32, 34], and ICD-10 criteria were used to define alcohol dependence in two studies [21, 27]. One study defined 'severe alcoholism' using the Michigan Alcoholism Screening Test (MAST) [19]. Two studies

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relied upon self-reports of heavy alcohol consumption and treatment seeking to indicate an alcohol use disorder [35, 36].

One study defined alcohol withdrawal syndrome as presentation with hand tremors and one other physical manifestation of withdrawal [19]. Some studies used standardised tools like the Severity of Withdrawal Symptom Checklist (SWSC) [16, 30], and the Modified Selective Severity Assessment (MSSA) [29], to monitor the severity of withdrawal. These tools were used to determine withdrawal status for entry into the study. The tools used to monitor withdrawal status during the detoxification process are listed later in the 'detoxification procedures' section.

Eligibility/ineligibility criteria for home detoxification

There was overlap in both the eligibility and ineligibility criteria for home detoxification used in the included studies, summarised in Box 1. Common eligibility criteria for home detoxification included the following:

A) Requisite for detoxification in any setting

a) clinical need for alcohol detoxification assessed in one of several ways: presence of alcohol withdrawal syndrome [19], presence of alcohol dependence [18, 20, 25, 26], self-report of heavy drinking [29], and breath analysis [19, 29], b) expressed

Box 1

ELIGIBILITY CRITERIA

- Motivation
- GP consent
- Clinical need
- Ability to reach clinic
- Ability to follow medication instructions
- Relatively healthy
- Availability of carer
- Safe home
- No other substance use in home
- Ability to stop work for 1 week
- Inability to self-detoxify

INELIGIBILITY CRITERIA

- Alcohol withdrawal-related: Severe withdrawal, delirium tremens, and withdrawal seizures.
- Mental health problems: Psychoses, suicidality, severe memory difficulties, hallucinations, depression, abuse of substances other than alcohol
- Physical health problems: Epilepsy, hypertension, unexplained loss of consciousness, jaundice, hematemesis, melena, ascites, severe peripheral neuritis, cerebrovascular disease, coronary heart disease, type 2 diabetes, hypertension
- Severe physical/psychological disorders (unspecified)
- No stable residence
- Repeated failure to complete community detoxification

motivation to stop drinking [17, 20, 24, 26, 27, 29, 30, 32, 34],

B) Specific for home detoxification

a) another person available in the home to care for the patient, and provide support and monitoring

[24, 27, 31, 33], b) a safe home environment [20, 21, 24, 31, 32,

34], c) no other substance use within the home [35, 37, 38], and

d) consent from the General Practitioner (GP) [24, 30, 32, 34].

Other not so commonly described criteria included the patient's

ability to reach the clinic [19, 25], ability to follow medication

instructions [19], ability to stop working for one week [24],

inability to self-detoxify [25], and the patient being relatively

healthy [31].

Ineligibility criteria included a range of medical conditions such

as a history of epilepsy [15, 27, 31], unexplained unconsciousness [27, 33], jaundice

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[27, 33], haematemesis [27, 33], melaena [27, 33], ascites [27, 33], severe peripheral neuritis [27, 33], cerebro-vascular accident or coronary heart disease [20, 27, 33], type 2 diabetes [20], hypertension [20, 31], and severe physical illness (unspecified) [15, 24, 32, 34]. History of withdrawal-specific complications such as severe withdrawal [19, 20, 26, 31], delirium tremens (current or past) [24, 27, 30], withdrawal fits [15, 24, 27, 32-34], and repeated failure to complete community detoxifications [24] were also contraindications for home detoxification. Other reasons for ineligibility for home detoxification included mental health problems such as psychoses [30], suicidality [30], severe memory difficulties [30], active hallucinations or history of hallucinations [27, 33], depression [27, 33], other substance abuse with alcohol [25], and other severe mental illness (unspecified) [15, 24, 31, 32, 34]. Also, patients with no stable residence [15, 31] were considered to be ineligible for home detoxification.

Detoxification procedures

Medications for detoxification were prescribed either in primary care [15-17, 20, 27, 30, 32, 34] or in community-based addiction services [18, 19, 21, 24-26, 29, 33]. Detoxification symptoms and signs were monitored either at the patient's home [15-17, 20, 21, 24, 27, 30-34] or in outpatient settings e.g. primary care clinics [18, 19, 25, 26, 29]. The detoxification period ranged from 3-12 days, with many studies specifying that the length of detoxification depended on the severity of dependence. Benzodiazepine was the primary medication for alcohol detoxification. Seven studies utilized a fixed reducing dose regime [15, 16, 25-27, 29, 30], whereas two studies each allowed medication dosing to be determined by the GP [32, 34], or as per symptoms [19, 24]. The primary medications prescribed for detoxification included chlordiazepoxide [16, 17, 27, 29, 30], oxazepam [19], diazepam [25, 26], and chlormethiazole [32, 34]. In two studies, there was a choice given between medications, chlordiazepoxide or diazepam [20] and diazepam or lofexidine [24]. In three studies thiamine was prescribed in addition to a benzodiazepine [20, 25, 36].

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3 All but six studies included daily medication monitoring [17, 19, 24-27, 29-31, 33];
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5 one study had less than daily monitoring [15] and three studies had more than daily
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7 monitoring [16, 32, 34]. Withdrawal symptoms were monitored through using
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9 standardised scales such as Severity of Withdrawal Symptom Checklist (SWSC) [16,
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11 30], Symptom Severity Checklist (SSC) [24, 32, 34], Modified Selected Severity
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13 Assessment (MSSA) [19, 29], Alcohol Withdrawal Scale [20], and Withdrawal
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15 Symptom Score [17].
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19 *Safety*

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21 There were no differences in the proportion/number of detoxification related adverse
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23 events during home detoxification compared to in-patient detoxification i.e. visual
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25 hallucinations 10% vs 8% [30] and one case of seizures vs one case each of
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27 seizures and hallucinations) [32]. One patient with a schizophrenia diagnosis
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29 reported suicidality during community detoxification, and had to be admitted to the
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31 hospital [19]. However there was no information to indicate whether the reported
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33 suicidality was directly related to home detoxification. Five studies reported that no
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35 adverse events took place during community detoxification [17, 25-27, 31].
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39 *Initiation and completion of detoxification*

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41 Detoxification was initiated in 100% of the patients in all but two studies. Among the
42
43 latter, 38.3% of those prescribed detoxification initiated community detoxification.
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45 Reasons for not initiating community detoxification included undertaking day or
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47 inpatient detoxification, abstinence at the time of assessment, not attending or
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49 cancelling appointment, and not meeting criteria for home detoxification [24]. In the
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51 other study, 88% of homeless men living in a hostel who were prescribed
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53 detoxification initiated the detoxification. Reasons for not initiating detoxification were
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55 because the hostel was filled to capacity, and age of the patient (<18 years) [17].
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3 Detoxification completion rates for community detoxification ranged from 50% to
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5 100%. Three studies had a 100% completion rate for detoxification [18, 20, 35]. In a
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7 retrospective audit of services, Wiseman et al. found that 88% of those patients who
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9 began detoxification completed it, while 4% dropped out, 3% were discharged, and
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11 5% were moved to inpatient care [36]. Two studies compared completion rates
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13 between home detoxification and facility-based detoxification. In one study,
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15 detoxification completion rates were 90% for home detoxification and 78% for
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17 detoxification in the day hospital [30]. In the other study, 50% of the community
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19 (hostel) detoxification group completed detoxification, compared to 36.4% of the
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21 inpatient hospital group [17]. Except for one study [36], none of the other studies
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23 defined detoxification completion. The former defined detoxification completion as
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25 attendance at all program appointments and negative breath analyses for alcohol on
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27 all days enrolled.
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Effectiveness/Efficacy/Impact

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33 Across studies there was a heterogeneity of outcomes measures, precluding a
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35 quantitative synthesis of the effectiveness data.
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Experimental studies

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41 In this section we report results from RCTs, matched cohorts, and unmatched
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43 cohorts with mostly insignificant (statistically) differences between the two cohorts.
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45 Compared to patients undergoing facility based detoxification, those who underwent
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47 community detoxification were more likely to be drinking less or abstinent [17, 30,
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49 31]. However, when home detoxification was compared to 'minimal intervention'
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51 (assessment only) there were no significant difference in abstinence rates at 6-month
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53 follow-up between the two groups, although the home detoxification group remained
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55 abstinent for a significantly longer time than the minimal intervention group ($p < 0.001$)
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57 [16]. Similarly another study did not find any significant difference in abstinence rates
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3 when an outpatient detoxification intervention was compared to an outpatient
4 detoxification intervention supplemented by home visits [18].
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8 9 Observational studies

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11 In a treatment cohort receiving community detoxification, 20.6% of community
12 detoxification completers were drinking at follow up (measured using a daily breath
13 analysis) but, compared to non completers, the former drank on a fewer number of
14 follow up days (10% vs 35%) [19]. In a case series (n=4) of a community
15 detoxification, at three months, two patients were completely sober, one patient had
16 marked improvements in cognitive and functional status despite failure to maintain
17 abstinence, and the remaining patient was actively drinking and had cognitive
18 impairments [20]. Finally, in a treatment cohort of 30 patients undergoing home
19 detoxification, compared to baseline there was a significant reduction in quantity and
20 frequency of drinking and Alcohol Problems Inventory scores at follow up [38].
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33 Cost

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35 In Australia, detoxification in a general hospital costs 10.6 to 22.7 times that of home
36 detoxification [35]. In the UK, inpatient detoxification for homeless people was
37 roughly four times the cost of that in a community hostel [17]. Another study
38 conducted in the UK reported that inpatient detoxification costs were six times
39 greater than those of outpatient detoxification [26]. A retrospective audit conducted in
40 the UK reported a 50% reduction in patient admission to the hospital for alcohol
41 detoxification within the first year of the community detoxification program, giving an
42 estimated savings of 74 inpatient weeks [25]. A similar study completed in the US
43 projected \$600,000 savings within the first year of the outpatient program [36].
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55 *Uptake of continuing care*

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Two studies reported high levels of continuation of services among participants who completed community detoxification, ranging from 52% to 74% [30, 36]. However, in one study the uptake of continuing care by the home detoxification care was not much different from the day hospital group (52% vs 53%). Two other studies reported that there was no difference between the amount and type of continued services utilized by home detoxification patients and the respective comparison groups in those studies [16, 35].

Acceptability

Timely support following initial help-seeking was seen to be an important element in the initiation and completion of detoxification. Long waiting periods to initiate detoxification led to patients feeling “desperate” and “anxious” ; and their family members struggled to maintain motivation in the patient during this time [21]. On the other hand patients were significantly more likely to attend their assessment appointment if the waiting period was less than 24 hours [17].

Studies reported that the majority of patients preferred detoxification in the home [22, 38], and some reasons for that were the ability to continue working and scheduling of home visits around work shift times [21], and the perception that more attention was given to outpatients than inpatients during counselling sessions [25]. Patients and carers rated support from the community alcohol team nurses most highly, even above medication; and caregivers also highly valued telephone support, breathalyzer checks and medications [38]. Positive feedback was received from users of community detoxification programs that involved a collaboration between the community, hospital, and primary care teams [30, 33, 21]. However some shortcomings of such programmes included gaps in communication between voluntary staff and the detoxification team, lack of information about the service,

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3 absence of one single coordination center [21], and the prohibitive cost of aftercare
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5 impacting sustainability of abstinence following detoxification [23].
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9 In general, GPs supported the concept of home detoxification and their own
10 involvement, but concerns were raised about time constraints, ability of patients to
11 self-medicate during home detoxification, availability of support and resources [22,
12 28]. GPs listed unsupportive family or friends, unreliable or unmotivated patients,
13 social isolation, severe mental or physical illness, history of repeated failures, severe
14 alcohol dependence, inadequate housing, and young children at home as
15 contraindications for home detoxification [28].
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24 25 *Feasibility*

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27 ~~Community detoxification run by no formally trained staff except a general~~
28 ~~practitioner was not only feasible but also superior to inpatient treatment for~~
29 ~~treatment-seeking homeless persons [15].~~ Despite such findings, GPs question the
30 safety and effectiveness of home detoxification for those with severe alcohol
31 withdrawal and were hesitant to take responsibility for such patients [22]. However,
32 severely dependent patients undergoing home detoxification reported high levels of
33 satisfaction [30], with community detoxification being seen to be feasible even for
34 patients with chronic alcohol problems having limited social and environmental
35 support [19]. On the other hand home detoxification is deemed to be unsafe in those
36 unable to procure stable, short-term living arrangements and in those without
37 sufficient control of psychotic symptomology [19]. GPs from Australia expressed
38 concerns about their own ability to prescribe and oversee home detoxification,
39 suggesting the use of standardised protocols, assessment schedules and
40 prescription regimes for different levels of dependence. They also reported the
41 following structural barriers: lack of appropriate remuneration (considering the time
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consuming nature of home detoxification), lack of specialized training, and fear for personal safety in making home visits [22].

Discussion

Despite some variability in eligibility criteria and detoxification procedures in the included studies, the current review demonstrates that community detoxification has good rates of initiation and completion, is safe, leads to improved drinking outcomes, is cheaper than inpatient detoxification, and is generally feasible to deliver and acceptable to a range of stakeholders. However the variability in eligibility and detoxification and the nature of the study designs precludes the synthesis of the available evidence into clear evidence based clinical recommendations. In fact, in our opinion, the biggest outcome of this review is to highlight the large gap in the evidence base and the need to generate high quality evidence, because the preliminary evidence does demonstrate the potential utility of home detoxification in reducing the treatment gap for alcohol dependence, which exists even in high income countries [39]. **Some lessons to be learnt from the limited evidence we have is that a safe and effective community detoxification programme should be characterised by clearly defined eligibility criteria, non ambiguous medication protocols based on objective measurement of withdrawal symptoms, at least daily structured monitoring of the patient's progress, and linkage with continuing psychosocial care after completion of detoxification.**

Despite the preliminary evidence about the utility of home detoxification as summarised above, it is not a commonly followed approach in low resource settings where facility based detoxification possesses several practical barriers to access. In such low resource settings, one of the solutions to the treatment gap for a range of mental, neurological and substance use (MNS) disorders has been using relatively easily accessible platforms of care (e.g. primary care) to deliver evidence based

Alcohol detoxification in the community: a systematic review

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3 interventions by non-specialist health workers [40]. The preliminary evidence for
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5 community detoxification lends itself well for making a case for delivering this
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7 intervention through primary care platforms and needs further exploration using
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9 robust study designs.

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13 It is notable that for a treatment delivery approach that possesses many potential
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15 advantages, including preliminary evidence of effectiveness/impact, acceptability,
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17 accessibility and feasibility and one that is increasingly being used in high income
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19 countries (as evidenced by the numerous community detoxification guidelines
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21 available e.g.
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23 [http://www.nht.nhs.uk/mediaFiles/downloads/105373918/MMG021%20Guidance%20](http://www.nht.nhs.uk/mediaFiles/downloads/105373918/MMG021%20Guidance%20for%20Community%20Alcohol%20Detoxification%20(Aug14-May16).pdf)
24
25 [for%20Community%20Alcohol%20Detoxification%20\(Aug14-May16\).pdf](http://www.nht.nhs.uk/mediaFiles/downloads/105373918/MMG021%20Guidance%20for%20Community%20Alcohol%20Detoxification%20(Aug14-May16).pdf)), there are
26
27 hardly any RCTs to examine the cost effectiveness of home detoxification compared
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29 to inpatient detoxification. Furthermore, almost all of the evidence that is available on
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31 the various aspects of home detoxification has been generated before the year 2000.
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33 So, there is limited cost effectiveness evidence and there is limited recent evidence
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35 about home detoxification. In the absence of such evidence it does appear that
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37 community detoxification guidelines are informed by extrapolation of evidence from
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39 inpatient detoxification, even though the former might have its own specific
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41 contextual requirements different from the latter. Furthermore, even in this existing
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43 limited literature about home detoxification, only one study is based in a low and
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45 middle income country (LMIC) [18]. LMICs have distinct contextual characteristics
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47 compared to high income countries e.g. shortage of specialist human resources. The
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49 lack of cost effectiveness evidence from such settings is a major gap in evidence as
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51 such evidence from low resource settings could potentially be used to inform
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53 community based services for alcohol dependence in LMICs thus helping to
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55 overcome the barriers to access posed by facility based care in such settings.
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There are some methodological limitations of this systematic review. The review was focused only on published literature and grey literature was not explored. Also, the literature search was restricted to papers written in English, and most of the identified studies were based in high-income countries, thus impacting the generalizability of findings to non-Western settings. However, it is inconceivable that all of the addictions research literature from LMICs on this particular topic would be published in non-English language journals when in fact a lot of other addictions literature from such countries is published in English language journals. This systematic review has its strengths, the primary one being the systematic approach of literature searching and the strict adherence to a study protocol. Furthermore, the approach that was followed in extracting data on a range of domains (e.g. effectiveness, feasibility, safety etc) resulted in making this review a comprehensive synthesis of the research literature on this topic. There have been no such reviews of home detoxification in the past. The reviews published on this topic have been limited by the non systematic nature of the search strategy [12], or a focus on discrete steps of the home detoxification procedure e.g. eligibility criteria [41]. Besides the limitations of the review process the studies included in the review themselves have limitations which need to be taken into account when interpreting the data. One such limitation is the outcome of 'abstinence' measured in some of the studies. Detoxification is not a treatment for AD and one should not expect significant long term abstinence rates with detoxification alone in the absence of follow up psychosocial support. In some of the studies the comparison was not between randomly allocated groups (RCTs) or matched cohorts, hence comparison of costs between inpatient and community detoxification would be biased as the former group would have more severely unwell patients requiring longer admissions and more resources. Finally we observed that thiamine was prescribed in very few studies. Although this is a matter of concern, it is possible that this is a reporting issue and not an issue of lack of prescribing.

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5 There are several implications of the findings from our review, the foremost being the
6 need for more RCTs testing the cost effectiveness of community detoxification in
7 comparison with inpatient detoxification, especially in low and middle income
8 countries. As patients would generally prefer inpatient detoxification and might not
9 wish to be randomised, conducting patient preference trials might be a viable option.
10 In such trials patients can choose to be randomised and those that don't want to be
11 randomised can choose to receive the intervention or control. The current evidence
12 base supports the case for community based approach to detoxification but is not
13 sufficient to inform evidence based guidelines or policies for such an approach.
14 Furthermore, primary care services should provide an option of community based
15 detoxification for eligible patients, thereby increasing the penetration and coverage of
16 services for patients with AD. While doing that, it is important to remember that
17 patients with mild dependence might not need detoxification; to be able to make that
18 decision it is important to build the capacity of primary care personnel to identify
19 different severities of AUD. Finally, policymakers, especially those in low resource
20 settings should focus efforts on de-centralising services for detoxification from
21 specialist services to a stepped care model where detoxification is managed in
22 primary care in the first instance with referral of complex cases to specialist services.
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Table 1. Details of studies included in the review

Author, Year	Study Design	Country	Sample Size (n)	Age (mean or range)	Gender
Allan, 2000 [30]	Quasi-experimental	UK	65	Home group: 46.4 (SD 12.2) Hospital Group: 45.1 (SD 9.8)	67% male 33% female
Alterman, 1988 [19]	Case series	USA	49	40	Only males
Alwyn, 2004 [15]	RCT	UK	91	21-77, mean 43 (SD 10.16)	59% male 41% female
Bartu, 1994 [31]	Quasi-experimental	Australia	40	Not specified	70% male 30% female
Bennie, 1998 [16]	RCT	UK	76	23-72, mean 48.5 (SD 11.8)	77.6% male 22.4% female
Bryant, 2001 [33]	Mixed methods (audit of case notes and qualitative)	UK	62	Not specified	Not specified
Callow, 2008 [24]	Observational (audit of case notes)	UK	154	22-71, mean 40.9	71.4% male 28.6% female
Carlebach, 2011 [21]	Qualitative	UK	24	Not specified	50% male 50% female
Collins, 1990 [25]	Observational (audit of case notes)	UK	173	85% aged between 26-55	78% male 22% female
Evans, 1996 [20]	Case series	Canada	4	66-77	50% male 50% female
Haigh, 1990 [17]	RCT	UK	50	18-68, mean 42.42	96% male 4% female
Klijnsma, 1995 [26]	Observational (treatment cohort)	UK	28	Male: 28-65, mean 43 Female: 38-57, mean 46	85.7% male 14.3% female

Moraes, 2010 [18]	RCT	Brazil	120	43 (SD 8.6)	90% male 10% female
Roche, 2001 [22]	Qualitative	Australia	52	19-70, mean 40.5	61.5% male 38.5% female
Sharpley, 1999 [27]	Observational (audit of case notes)	UK	118	Not specified	Not specified
Stockwell, 1986 [28]	Observational (cross- sectional survey)	UK	145	Not specified	Not specified
Stockwell, 1990 [34]	Mixed methods (treatment cohort with quantitative and qualitative interviews)	UK	41	Male: mean 39.2 Female: mean 47.9	68.3% male 31.7% female
Stockwell, 1991 [32]	Quasi-experimental (with matching)	UK	70	40.7	Not specified
Van Hout, 2012 [23]	Qualitative	Ireland	9	Not specified	Only females
Wiseman, 1997 [29]	Observational (treatment cohort)	USA	517	41.8 (SD 8.1)	98% male 2% female

Table 2. Effectiveness, costs, acceptability of community detoxification

Author, Year	Initiation of Detoxification	Completion of Detoxification	Follow-up Length	Effectiveness	Uptake of Follow-up Services	Cost Outcomes
Allan, 2000 [30]	100%	Home Group: 90% Hospital Group: 78%	60 days	Home group: 45% good outcome, 17% improved, 28% unimproved, 10% unknown Day hospital group: 31% good outcome, 3% improved, 44% unimproved, 19% unknown, 3% dead	Home group: 52% Hospital group: 53%	-
Alterman, 1988 [19]	100%	69%	-	Drinking in 20.6% of completers, and reported on only 10% follow-up appointments Drinking in non-completers found for 35% of follow-up appointments	-	-
Alwyn, 2004 [15]	100%	-	3 and 12 months	3 months: 25 of the treatment group compared to 10 of the control group were abstinent or drinking 3 or less units per day; 18 of the treatment group and 32 of the control group were drinking more than 3 units per day. (p = 0.01)	-	Inpatient 9 times cost of home detoxification

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				12 months: 15 of the treatment group and 3 in control group were abstinent or drinking 3 or less units per day; 23 of the treatment and 37 of control were drinking greater than 3 units per day (p=0.001)		
Bartu, 1994 [31]	100%	100%	6 months	No significant difference between abstinence, but significant difference in weeks of abstinence between groups Mean number of weeks abstinent for home group was 16.3 (SD 6.8) and 9.6 (SD 8.1) for minimal intervention group. (p <0.001)	No difference in uptake of services between groups	Cost benefit ratio of home to inpatient between 3.9-8.3 General Hospital detoxification 10.6-22.7 times cost of home
Bennie, 1998 [16]	-	-	-	-	No difference in amount and type between groups	-
Bryant, 2001 [33]	100%	-	-	-	-	-
Callow, 2008 [24]	38.3%	96.6%	-	-	-	-
Carlebach, 2011 [21]	-	-	-	-	-	-
Collins, 1990	-	79%	-	-	-	Savings of 74 inpatient weeks in

[25]						first year
Evans, 1996 [20]	100%	100%	3 months	50% abstinent; 50% actively drinking	100% continued with counsellor; 1/4 used other services	-
Haigh, 1990 [17]	88%	Community hostel: 50% Inpatient: 36.4%	1 month	Hostel group: 33.3% abstinent Inpatient group: 14.3% abstinent	-	Inpatient 4 times cost of community hostel detox.
Klijnsma, 1995 [26]	100%	82.1%	Mean 72 days (range 55-149)	28.6% good outcome; 32.1% improved, 39.3% not improved; 25% were abstinent	52%; 87.5% with good outcome, 44.4% improved, 25% not improved	Inpatient 6 times outpatient cost
Moraes, 2010 [18]	100%	100%	3 months	44% more abstinent patients in home group than control treatment group (p = .101)	-	-
Roche, 2001 [22]	-	-	-	-	-	-
Sharpley, 1999 [27]	-	-	-	-	-	-
Stockweil, 1986 [28]	-	-	-	-	-	-
Stockweil, 1990 [34]	100%	85.4% (35/41)	60 days	46.7% (14/30) good outcome, 43.3% improved outcome; Number of drinking days, units of alcohol consumed in previous week, and Alcohol Problems Inventory scores dropped significantly from	90.9% attended follow-up appointment	-

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				previous two months (p<0.001)			
Stockwe ll, 1991 [32]	100%	94.2% (33/35)	10 days	41.5 (17/41) drank an average of 24.7 units in 10 days	-	-	
Van Hout, 2012 [23]	-		-	-	-		Cost of aftercare seen as prohibitive
Wisema n, 1997 [29]	100%	88%	-	-	96% referred, 74% of referred completed		Projected \$600,000 savings in first year of program

For Peer Review Only

Search strategy (for Medline)

1. Alcohol/
2. Alcohol dependence/
3. Alcohol dependent/
4. Alcohol dependence syndrome/
5. Alcohol problems/
6. Alcohol abuse/
7. Alcohol use disorder/
8. Alcoholism/
9. Alcohol addiction/
10. Alcohol addict/
11. Alcohol withdrawal/
12. Alcohol withdrawal syndrome/
13. Delirium tremens/
14. Alcoholic/
15. Or 1-14
16. Alcohol\$.tw
17. Alcohol dependen\$.tw
18. Alcohol problems.tw
19. Alcohol use disorder.tw
20. Alcohol addict\$.tw
21. Alcohol withdrawal.tw
22. Alcohol withdrawal syndrome.tw
23. Delirium tremens.tw
24. Or 16-23
25. 15 or 24
26. Detoxification/
27. Detox/
28. 26 or 27
29. Detox\$.tw
30. 28 or 29
31. Community/
32. Home/
33. Ambulatory/
34. Outpatient/
35. Or 31-34
36. Community.tw

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- 37. Home.tw
- 38. Ambulatory.tw
- 39. Outpatient.tw
- 40. Or 36-39
- 41. 35 or 40
- 42. 25 and 30 and 41

For Peer Review Only