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Mobile Medical Outreach: A Commitment to Service

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The outreach model of health care delivery was designed from its beginning to bridge care to the hardest to reach, most marginalized homeless populations. From its humble origins, the Health Care for the Homeless (HCH) model of outreach has been a work-in-progress. First, care was often delivered from the back of vans with supplies stored in plastic trunks; later, makeshift clinics in tents with folding card tables brought a semblance of privacy to both client and provider; and finally, state-of-the-art mobile medical vehicles complete with electronic medical record systems and pharmacies became clinics on wheels that travel anywhere to reach clients in need.

For over 20 years, HCH clinicians have refined a dynamic program of mobile health service characterized by innovation, flexibility, and comprehensive care for people who are homeless. This program complements other outreach models provided by walking teams practicing "street medicine." The mobile model strives to reduce economic, geographic, and psychosocial barriers to care in an accessible and welcoming way for those who are either unable or unwilling to go to fixed-site clinics (Post 2007).

What outreach workers have discovered while caring for individuals who are among the most underserved, is that the simple act of reaching out in a time of great need can be the most healing tool we have to offer (Morrison 2007, Vasilaki et al. 2006). Medical outreach programs have developed a model that works to bring medical, mental health, and social assistance services to the streets of cities as well as rural areas all over the United States. These programs rely on the skills of compassionate medical providers, knowledgeable support staff, and deeply committed social workers.

Working in collaboration with community partners and other health care providers and organizations, outreach programs provide evidence-based primary care to populations that would inappropriately utilize emergency department care when they were able to access care at all. The outreach programs interact with other clinics to share responsibility for care of patients who are desperately in need of support, thereby connecting the dots in care delivery and helping to bridge the gap between need and resource.

BACKGROUND

Outreach Program Description

Homeless people served by mobile health programs generally lack health insurance and transportation that might enable them to access ongoing primary care, medications, behavioral health care, specialty services, and oral health care. They also have difficulty obtaining documentation required for public health insurance or are ineligible due to a drug or alcohol problem or undocumented status. In addition, many do not trust in or may feel intimidated by the traditional health care system often times because of a history of abuse, mental illness, or a substance use disorder; others may feel stigmatized, suffer language barriers, or not know where clinics for uninsured people are located (Post 2007).

Realizing that the health care needs of homeless individuals are often complex, mobile programs strive to offer a temporary medical home and comprehensive services until clients can be linked with a fixed-site clinic where care can be delivered more efficiently. They fulfill their missions by providing compassionate, culturally competent outreach; helping with transportation to clinics; supplying other incentives to promote engagement in a therapeutic relationship (food vouchers, hygiene kits, clothing); and offering a consistent mobile service schedule as well as assistance in applying for public benefits including health insurance.

Successful care strategies include (Post 2007):

- Integrated care services provided by a multidisciplinary clinical team
- Holistic approaches that address psychosocial as well as medical care needs
- Emphasis on building nonjudgmental therapeutic relationships based on trust
- Immediate assessment and care for uncontrolled chronic medical conditions (e.g., asthma, COPD, diabetes, hypertension, peripheral vascular disease, chronic liver or renal disease)
- Attention to transient and congregate living styles that increase risk of contracting or transmitting communicable diseases (e.g., tuberculosis, HIV/AIDS)
- Recognition that homeless people may resist treatment or have extreme difficulty adhering to a medical regimen because of psychiatric illness, mental retardation, or substance use disorders

The majority of mobile health programs serve urban areas. Need for mobile programs also exists in suburban and rural areas where health care services for indigent individuals are scarce, however, mobile outreach in these areas is more expensive because of the number of miles serviced, fuel costs, and vehicle maintenance. Such significant obstacles related to financial capacity necessary for operation and staffing influence development and maintenance of all mobile health programs (Post 2007).

> "The most marginalized of patients tend to be isolated. A goal of our mobile program is to reach out to them to prevent use of EDs to meet primary care needs." —*Wayne Centrone, NMD, MPH, Outside In, Portland, Oregon*

The Outside In medical clinic is located in Portland, Oregon. The clinic is connected to a social service agency that targets services for homeless adolescents and young adults. Programs offered at the HCH center include: case management, on-site housing, a drop-in center, education and vocational training (there is an on-site public school), a syringe exchange program, and medical clinic. A medical outreach program was started in 2000 as part of the medical clinic.

Outside In's initial outreach care program was delivered from plastic bins and fold-up tents because of limited funding resources. Over time, as collaborations throughout the community increased, the outreach program has grown to include 13 program models that reach homeless youth and adolescents, homeless single women, marginalized and underserved families, and high-risk homeless men. Outside In Community Medical Outreach now operates out of a 38-foot mobile medical vehicle with three fully stocked consultation rooms, an electronic medical record system, a laboratory, and pharmacy area.

Meeting the Client on His Own Turf

Clinicians who provide outreach care must be skillful in establishing relationships with their clients. Many find that motivational interviewing and an approach known as the *brief intervention* are helpful in engaging clients, especially those with alcohol and substance-related disorders (Kaner et al. 2007, Gaume et al. 2008A, Gaume et al. 2008B, HCH Clinicians' Network 2009). Understanding that the basic goal is to reduce harm from continued substance use, these clinicians integrate the process into daily care practices. Their attitude is one of

understanding and acceptance and helps them listen actively as they guide clients to explore and resolve ambivalence and begin a process of change based on trying to achieve and maintain new behaviors. Such clinicians work to help their clients establish intermediate steps that reinforce a motivation to change. There are six evidence-based components of effective brief interventions (HCH Clinicians' Network 2009, Morrison 2007):

- *Feedback* given to the individual about personal risk or impairment
- *Responsibility* for change belongs to the participant
- *Advice* to change is made explicit
- *Menu* of alternative self-help or treatment options is offered to the participant
- *Empathic* style is used by the clinician
- *Self-efficacy* or optimistic empowerment is engendered in the participant

It is important that these components are applied consistently throughout treatment by: introducing the issues within the context of the client's health; screening, evaluating, and assessing; providing feedback; talking about change and setting goals; and summarizing and reaching closure. When clinicians use these approaches, clients benefit and view their providers as someone who really listens to me, who is kind and concerned that I will get better, and who explains what is wrong with me and how I can work to change my health in a way I can actually understand.

Mr. D came to the mobile outreach clinic after battling a 40-plus year history of alcohol and opiate addiction because it was easy—the van was on his street. He came to the clinic not for abstinence treatment services or for help with his quickly deteriorating health, but because he was experiencing swelling in his legs and wanted something to help "get rid of the water." That first encounter with our health care team developed into weekly appointments and a deeply devoted relationship among us all. It was a relationship fully grounded in Mr. D's wishes and desires—sometimes in spite of the clinicians' protests and requests that the care team be allowed to help him more.

Clients who seek treatment for the obvious effects of illness may also be ready to address the underlying problems (in this case alcohol abuse) when treatment outreach is in close proximity and clinicians offer nonjudgmental encouragement (Nuttbrock et al. 2003). A critical component of the outreach model of care delivery is "meeting the client" where they are physically, emotionally, and mentally. An outreach approach to care is predicated on the foundational idea that bringing services directly to the patient or client is the first step in developing and maintaining a therapeutic relationship. In the same way that disease does not occur in a vacuum, it is unrealistic to believe that longitudinal care be delivered in a focal event fashion.

Mr. D had found a medical home with care providers who listened to him. Moreover, the care team had found an exceptional client who—out of all the clients that they had been fortunate to serve—really made an impression they would long remember. Indeed, his story became so compelling because it represented all that the team hoped to accomplish—and all that they were unable to provide.

CASE DESCRIPTION

Psychosocial Evaluation

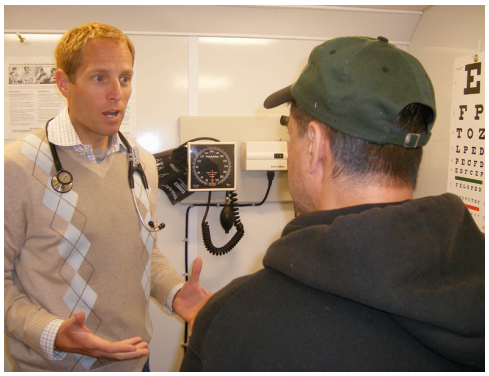
Mr. D, a 56-year-old Caucasian male, presented to the mobile medical outreach clinic with a concern about "water on my legs." He was unemployed, uninsured, and long estranged from his family. The client had been without stable housing for a number of years, in his words, "moving from place to place" and now he was living in a small house with a group of "drinking friends." He had not been in contact with a primary medical or health care professional for a number of years, insisting: "I don't like doctors, they just make you sick."

Mr. D reported a history of injection drug use (opiate dependence), but described a 10-year history of abstinence. He recounted a habit of 10 to 16 beers per day. The care team assessed Mr. D for his alcohol consumption using the Short Alcohol Dependence Data Questionnaire (SADD), a validated and standardized interview tool

(Raistrick et al. 1983; *see* Appendix A). He said he had frequently attempted to cut down on his alcohol consumption, been annoyed by his family's insistence that he stop drinking, felt guilty about his continued alcohol consumption, and been drinking in the morning for almost five years. Mr. D reported a 50 pack year smoking history (25 cigarettes a day x 40 years/20 cigarettes in a pack; *see* National Cancer Institute definition of *pack year).* He further volunteered that he had "cut down" his tocabcco use to a pack a day.

Pertinent Medical History

Mr. D reported that his most recent access of medical care was at an area emergency department. "I have had diarrhea and vomited up blood a couple of times," he said. "I went to the emergency room and they did some tests. They wanted me to stay at the hospital, so I left." The client continued that he never returned to the emergency department. D'Onofrio and Degutis have substantiated that screening and brief intervention for alcohol problems in the emergency department are positive methods of engaging clients in ongoing care (2002). The adaptation of the medical interview is critical to the delivery of holistic care with underserved populations. Using evidence-supported methods and tools help HCH providers expand their care delivery with little additional time or intrusion to the patient.



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Results of Physical Examination

At the initial medical encounter, Mr. D was oriented and calm, but smelled of alcohol and showed obvious deficits in attention indicative of cognitive alteration due to substance use. The client was thin with skeletal muscle wasting. His cardiovascular and pulmonary examination was unremarkable with notable absence of overt signs of cardiomegaly. The abdominal examination revealed a smooth, nontender liver with no margin irregularities or nodules. The liver margins were palpable inferior to the costal margin and the crudely measured liver span at the midclavicular line was 17 cm and overtly indicative of hepatomegaly—more than likely secondary to his profound alcoholism. An impressive ventral hernia was evidenced on supine abdominal examination, but nicely reduced with manual repositioning. There was no indication of incarceration or strangulation.

Mr. D had profound rhinophyma with telangiectasias on the nasolabial bridge and buccal region. The client's peripheral vascular examination noted bilateral, nonpitting edema that was symmetric and non-erythematous. In addition, the client possessed palmar erythema with mottled appearance on the palms of both of his hands.

Notably absent from the clinical examination was any icterus or jaundice, ascites, or asterixis. The neurological examination was unremarkable, with the client demonstrating normal sensation to light touch by monofilament examination in both feet. Genitourinary examination revealed a profound right direct inguinal hernia with no indication of incarceration or strangulation. The pendulous herniated tissue was nontender upon examination.

Additional clinical examination revealed a negative occult blood examination, and digital rectal examination and rectal vault examination that were within normal limits. The client's non-fasting blood glucose was 144 mg/dL and screening hemoglobin was 10.4 mg/dL. A screening EKG demonstrated normal sinus rhythm and electrical activity. Mr. D's vital signs were temperature 98.2°F, pulse rate 95, and respiration rate 16; his blood pressure was 145/95.

Laboratory Evaluation

Over a two-plus year period, Mr. D participated in serial laboratory evaluations. His initial set of labs revealed predictable, yet abnormal, results:

COMP METABOLIC PANEL			
Sodium	[L]	129 mmol/L	[135–144]
Potassium		5.2 mmol/L	[3.7–5.5]
Chloride		100 mmol/L	[99–110]
Carbon Dioxide	[L]	17 mmol/L	[20–31]
Glucose		86 mg/dL	[60–109]
BUN	[H]	80 mg/dL	[6–23]
Creatinine	[H]	2.36 mg/dL	[0.60–1.30]
GFR	[L]	28 mL/min/1.73 m2	[>=60]
Calcium		8.5 mg/dL	[8.3–10.4]
Alkaline Phos		78 IU/L	[32–110]
Bilirubin Total	[H]	1.8 mg/dL	[0.2–1.2]
AST (SGOT)		39 IU/L	[11–39]
ALT (SGPT)		11 IU/L	[6–42]
Total Protein		7.0 g/dL	[6.1–8.0]
Albumin	[L]	2.8 g/dL	[3.2–4.9]
Bilirubin Direct	[H]	0.5 mg/dL	[0.0–0.2]
Complete Blood Count			
Neutrophils		73.0%	[40.0–81.0]
Bands		10%	[0–13]
Lymphocytes	[L]	8.0%	[20.0–53.0]
Lymphs Atypical	[H]	1%	[0–0]
Monocytes		6.0%	[1.0–10.0]
Eosinophils		1.0%	[.0–6.0]
Myelocytes	[H]	1%	[0–0]
Manual Diff			
Anisocytosis		Slight	
Echinocytes		Moderate	
Rouleaux		Slight	
Large Plts		Few	
Neutrophils Abs	[H]	11.1 10^9/L	[1.8–7.7]
Lymphocytes Abs		1.2 10^9/L	[1.0–4.8]
Monocytes Abs		.8 10^9/L	[.0–.8]
Eosinophils Abs		.1 10^9/L	[.0–.5]
Pro-Time			
PT	[H]	16.7 sec	[11.8–14.6]
INR	[H]	1.3	[.9–1.1]

Progressively Mr. D's liver transaminase levels elevated to the point where they sharply normalized once the hepatic cell destruction no longer revealed an enzymatic elevation. In addition, the patient persistently demonstrated laboratory indices that revealed macrocytosis, leukocytosis, and abnormal pro-time.

Mr. D's Model for End-Stage Liver Disease (MELD) scores were progressively tracked as a prospectively developed and validated chronic liver disease severity scoring system. The MELD scoring used the client's laboratory values for serum bilirubin, serum creatinine, and the international normalized ratios for prothrombin time (INR). The MELD score also has prognostic value in several clinical settings outside of liver transplantation including predicting mortality associated with alcoholic hepatitis and fulminant hepatic disease. Predictably, the client's MELD score progressively increased.

Assessment

An initial assessment of Mr. D's care needs revealed a complex web of psychological, social, and medical concerns. As he sought care only for the "water on his legs," the level of initial investigation was limited by his consent to diagnostic imaging and laboratory workup. Mr. D refused a request for a screening abdominal ultrasound. Therefore, the goal for Mr. D's initial level of care coordination was to develop a therapeutic relationship based on trust and to bridge toward a greater medical workup after the client was confident in the care team. A plan was established to have Mr. D follow up with the outreach team in two weeks in order to review his initial lab results and to assess the efficacy of the monotherapy diuretic care in "removal of the water" from the client's lower extremities.

Initial Diagnosis and Differential Diagnosis

Mr. D's initial diagnosis was alcoholic liver disease, associated with a broad spectrum of considerations that included: fatty liver disease, alcoholic hepatitis, alcoholic cirrhosis, and fibrosis (Adachi and Brenner 2005, Fiellin et al. 2000, Morgan 1994). However, because the client was reluctant to consent to diagnostic imaging and workup beyond a baseline laboratory analysis for the first few months of the care relationship, the initial diagnosis was alcoholic liver disease pending further diagnostic confirmation with hepatic imaging.

Interventions

Initial interventions for Mr. D included vitamin supplementation with a prenatal vitamin and mineral medication and Furosemide (a loop diuretic). When the client became more trusting of the care team, additional pharmacotherapeutic agents were added to his regimen and included:

- Lasix 20 mg tablets (Furosemide) (2 tablets PO bid)
- Omeprazole 20 mg capsules (1 tablet PO bid)
- Aldactone 100 mg tablets (Spironolactone) (1 tablet PO bid)
- Prenatal S tablets (Prenatal Vit-FE Fumarate-FA) (1 tablet PO q am)
- Ferrous sulfate 325 mg tablets (Ferrous sulfate) (1 tablet 2 x day with 1 500 mg vitamin C tablet)
- Docusate sodium 100 mg (2 tablets PO q hs)
- Nadolol 40 mg tablets (Nadolol) (1 tablet PO q am)
- Albuterol sulfate HFA 108 mcg/ACT AERS (Albuterol sulfate) (2 inhaled q4h for SOB)

The care team worked very closely with community partners to identify housing and treatment options for Mr. D. After the client became more open to the care team and to advanced medical evaluation, specialty care coordination with a gastroenterologist provided important diagnostic information following endoscopic and colonoscopic evaluation. Within one year of care engagement, the care team was able to open and complete a Social Security Administration (SSA) case for SSDI entitlements for the client and qualify Mr. D under the *Blue Book* listing for chronic liver disease (listing 5.05, Social Security Online).

DISCUSSION

Given Mr. D's reluctance to engage in a thorough diagnostic workup, the plan for follow-up was limited to a "one visit at a time" engagement plan, which can be so important to empowering the client. It was determined that the best method to fully engage and serve Mr. D was to allow him full autonomy about making medical decisions. This was often a difficult role for team providers to honor.

After the first few months of care, it was determined that the client was a better candidate for care delivery out of the HCH agency's "brick and mortar clinic." His care by the same physician was transferred from the mobile outreach clinic to a stationary site. Without sensitivity to such continuity of care, the client might not have continued his care plan because relationships are vital to establishment of a medical home. In addition, advanced social service advocacy was developed that included working to engage the client in substance abuse detox and treatment, and supportive housing, which ultimately led to Mr. D's increased sense of worth and his ability to enjoy many of his final days as well as reconcile with his daughters.

The most important holistic intervention clinicians provided in Mr. D's care management was the understanding that he had goals, desires, and dreams far transcending his current morbid state.

Mr. D remained in outreach program care with the HCH physician for over two years. As the client's morbidity advanced, the care team worked to find more and more resources to meet his needs. Mr. D quickly decompensated and required serial paracentesis procedures to remove the rapidly re-accumulating liver ascites. In addition, repeated transfusions were needed to stem his advancing anemia and red cell dysfunction.

Expected Outcomes

A client with such an extensive history of active alcoholism seemed unlikely to return to the mobile medical clinic after the initial encounter. Given the close proximity of the clinic to his domicile, however, the client felt that the "cost" of engaging care was minimal and repeatedly returned to the mobile medical van for weekly blood pressure screenings and body weight measurements. Because of Mr. D's history, and lacking permission to obtain liver function testing data, the clinical team could only follow the client for development of ascites. In a sense, this left the care team in a holding pattern, unable to advance toward a diagnosis or develop a comprehensive management plan. This was very frustrating for all of the providers involved in Mr. D's care.

Actual Outcomes

For months Mr. D and his care providers danced around the need for alcohol abstinence and long-term sobriety. For months Mr. D and his physician negotiated back and forth between what he wanted and what the clinician wanted. Finally, Mr. D allowed the care team to run a liver function test and order an abdominal imaging study. The test results were not favorable.

It did not matter what cocktail of medication the team was able to provide Mr. D because his morbidity was very advanced. The care team worked hard to get him into a specialist's care because they were all committed to providing him with the highest level of care possible. But there is only so much the human body can withstand before its compensatory mechanisms fail. Mr. D had reached the point of physical failure. Mentally and emotionally, however, he was beginning to blossom. His mind was finally free of the crushing alcoholism and he found himself reading, engaging in soul searching conversations, and pondering the past—a past that seemed to be closed from restitution. He counseled those who had counseled him, telling his physician, "You work too much, doc, you need to slow down!"

Mr. D was finally diagnosed with end-stage liver disease. He quickly decompensated and developed hepatorenal syndrome. Two months after diagnosis, he was dead.

The story between the lines highlights the work of mobile medical outreach programs. As a result of the ongoing clinical relationship, Mr. D was finally able to move to a place in his life that he had always wanted. His clinical team had worked hard to engage Mr. D in treatment and their efforts ensured a much better outcome than expected. For the first time in his adult life, he was sober and for this Mr. D was very proud. He reconnected with his daughters who had been estranged from him for 15 years after a bitter divorce. In addition, Mr. D was living in a safe, comfortable autonomous apartment he could call his own that the care team had worked long, arduous hours to secure in a recovery housing program. He had a television and DVD player, which were big points of pride for him. Indeed, Mr. D told us that he had finally found peace.

After Mr. D's death, his daughters came to Portland and held a memorial service for their father that celebrated his HCH providers and the care they had delivered on his behalf. The service was inspirational and a testament to the gifts clinicians receive in response to creating and sustaining relationships that help clients like Mr. D.

TAKE HOME MESSAGES FOR OUTREACH AND PRIMARY CARE PROVIDERS

- **Team Care Approach.** HCH care delivery is a complex interplay of social advocacy, community partnerships, medical care coordination, and relationship development. In the end, the greatest tool we offer is compassion. We work as a team to develop care plans that match client comfort levels and expectations—sometimes in direct opposition to interventions we want to make available.
- **Motivational Interview and Brief Interventions.** Current research shows that initial screening and brief interventions for alcohol-related illnesses and injuries can: prevent mortality and morbidity; produce consistent reductions in alcohol consumption; result in fewer emergency department visits and hospitalizations; decrease social consequences; and increase referrals for follow-up or treatment (D'Onofrio and Degutis 2002, Kaner et al. 2007).
- **Compassion in the Face of Care Limitations.** The focus of the Outside In Outreach Program is establishing relationships with homeless clients and using opportunities that grow from a commitment to showing compassion and love in service for their care. We would like to successfully move all clients off the streets and into permanent supportive housing, make care connections so that clients with advanced liver disease can receive liver transplants, and help clients reconcile long-estranged relationships, but such care options are not always possible.
- **Importance of Housing in Care of Clients with Chronic and End-Stage Disease.** Clinical research in Seattle and Chicago with homeless adults suffering from severe alcohol-related disorders and chronic illness shows that housing and case management programs provide consistent benefits to clients and their communities, resulting in fewer hospital stays and emergency department visits (Larimer et al. 2009, Sadowski et al. 2009).
- **Quality, Evidence-Driven Health Care.** Outside In clinicians show respect to their clients while providing high quality, evidence-driven health care. Regardless of their backgrounds, the most marginalized and underserved clients—including women involved in the sex industry with horrible histories of abuse and physical violence; high-risk young adults with complex mental health needs and recalcitrant drug use; undocumented laborers working in this country with the hope of earning a living wage in order to build a better future for their families—have an opportunity to learn that their care providers are genuinely concerned about them.

"I am proud to work with a team of dedicated, compassionate providers who everyday face some of the biggest tragedies our society does not want to acknowledge—and they care for people involved in these tragedies with a profound commitment to justice, peace, and love. Perhaps one day Health Care for the Homeless programs will no longer be needed. Perhaps one day there will be universal access to high quality healthcare for every citizen. Until that day comes, HCH Clinics and the Mobile Medical Outreach Programs that are integral to care delivery will continue to be servants to the forgotten citizens of our communities."

–Wayne Centrone, NMD, MPH, Outside In, Portland, Oregon

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APPENDIX A

SADD: Short Alcohol Dependence Data Questionnaire (Raistrick et al. 1983)

INSTRUCTIONS: The following questions cover a wide range of topics to do with drinking. Please read each question carefully but do not think too much about its exact meaning. Think about your MOST RECENT drinking habits and answer each question by circling the MOST APPROPRIATE heading. If you have any difficulties ASK FOR HELP.

	Never	Sometimes	Often	Nearly Always
1. Do you find difficulty in getting the thought of drinking out of your mind?	0	1	2	3
2. Is getting drunk more important than your next meal?	0	1	2	3
3. Do you plan your day around when and where you can drink?	0	1	2	3
4. Do you drink in the morning, afternoon and evening?	0	1	2	3
5. Do you drink for the effect of alcohol without caring what the drink is?	0	1	2	3
6. Do you drink as much as you want irrespective of what you are doing the next day?	0	1	2	3
7. Given that many problems might be caused by alcohol do you still drink too much?	0	1	2	3
8. Do you know that you won't be able to stop drinking once you start?	0	1	2	3
9. Do you try to control your drinking by giving it up completely for days or weeks at a time?	0	1	2	3
10. The morning after a heavy drinking session do you need your first drink to get yourself going?	0	1	2	3
11. The morning after a heavy drinking session do you wake up with a definite shakiness of your hands?	0	1	2	3
12. After a heavy drinking session do you wake up and retch or vomit?	0	1	2	3
13. The morning after a heavy drinking session do you go out of your way to avoid people?	0	1	2	3
14. After a heavy drinking session do you see frightening things that later you realize were imaginary?	0	1	2	3
15. Do you go drinking and the next day find that you have forgotten what happened the night before?	0	1	2	3

SCORING: The 15 items summed for a total score that can range from 0 to 45. Scale totals are interpreted as follows: 1–9 low dependence, 10–19 medium dependence, and 20 or greater high dependence.
The SADD can be used without charge. http://hamsnetwork.org/app2/. Accessed June 19, 2009.

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