

New Technology to Support Abstinence From Alcohol, Predict Relapse and Reduce Out-patient Costs.

K. Fletcher¹, E. Stone²

¹Faculty of Addiction Psychiatry, Royal College of Psychiatrists, Shrewsbury, United Kingdom ; ²Substance Misuse, SSSFT, Shrewsbury, United Kingdom

Introduction:

A new breathalyser can remotely monitor disulfiram compliance and breath alcohol levels, and can predict relapse before it occurs.

Objectives:

Improve compliance with disulfiram and post-detoxification abstinence rates from alcohol.

Aims:

To describe technology that provides remote support and monitoring to patients prescribed disulfiram and its clinical application.

Methods:

Disulfiram produces volatile organic compounds (VOCs) during its metabolism. These VOCs are detectable on a sample of breath using a photo-ionisation device. By adding a fuel cell it is possible to produce a hand-held breathalyser that determines disulfiram compliance and monitors alcohol levels. With appropriate software the instrument can be used remotely, and the encrypted readings can be sent to the clinical team from anywhere in the world with internet access.

This instrument, called a Zenalyser, has been constructed and used on a small sample (n=12) of severely alcohol dependent patients after in-patient detoxification.

Results:

Patients sent daily Zenalyser readings from various locations (e.g. UK, Australia, Germany). Equipment costs were below 2 euros per day.

It required less than 45 seconds of patient time per day. The clinical team required 2-3 minutes to read the results and email the patient. Patients were telephoned if Zenalyser readings dropped (missed tablet) or no sample sent. One patient had two lapses during an 8 month period which were detected in advance. All other patients abstained for periods between 3-36 months. Compliance and user satisfaction were high.

Conclusions:

The Zenalyser can improve disulfiram compliance and reduce out-patient costs. It may improve post-detoxification abstinence rates.