

What can digital technologies add to screening and brief intervention for alcohol use in healthcare settings?

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Professor Primary Health Care (emeritus)
General Practitioner (retired)









My research interests

Alcohol: screening & brief intervention (SBI) in general practice



Application of digital technologies in delivering health care



Digital technologies for managing alcohol problems









Grateful acknowledgements

- Nick Heather
- Peter Anderson
- Andy Haines
- Stuart Linke
- Jim McCambridge
- Elizabeth Murray
- Piero Struzzo





Scope of the presentation

- Digital technologies and their applications to healthcare
- Internet and mobile phone technologies for mental health & behavioural change
- Internet based alcohol screening and brief interventions
- GP facilitated access the ODHIN and EFAR trials
- Digital technologies into the future





Digital technologies

"Through digital technologies we know far more about the people we share this small planet with than ever before. The opportunities to harness digital technologies to enable more sustainable lifestyles are everywhere: in our energy, transport and food systems, in our built environment, between machines and between individuals."





Digital technologies and eHealth

- Digital technologies fundamentally rely on the storage, transmission and processing of information in the form of binary code. This is a form of numerical notation which uses only two characters: 0 and 1.
- eHealth is the use of emerging information and communication technologies, especially the internet to improve and enable health and health care





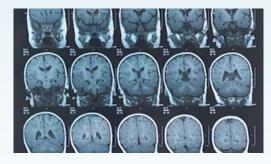
Eng 2001



Applications of digital technologies in health care

- Electronic care records (ECRs)
- Research using ECRs and databases
- Diagnostics and imaging
- Telemedicine and telecare
- Virtual healthcare teams
- Internet and mobile technologies for patients









Electronic care records (ECRs)

- Increasingly common in healthcare
- Virtually universal in UK general practice
- Increasing use of coded information
- Inter-operability







GP Records Database Research

GPRD

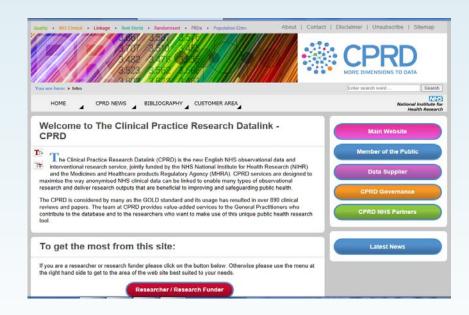
General practice research database

THIN

The Health Information Network

Q Research

EMIS system



Large volume of studies published on:

Arthritis, asthma, COPD, blood pressure, heart disease, Depression, anxiety schizophrenia, Diabetes, stroke, cancer, Parkinson's disease, liver and renal disease

Research using ECRs and databases

"We're going to consult on actually changing the NHS constitution, so that the default is for patients' data to



be used for research – unless of course they want to opt out. The end result would be that every willing patient is a research patient...

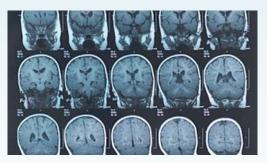
...that every time you use the NHS you're playing a part in the fight against disease, at home and around the world."



Applications of digital technologies in health care

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- Virtual healthcare teams
- Internet and mobile technologies for patients









Telemedicine Wallace et al Lancet 2002



ARTICLES

Joint teleconsultations (virtual outreach) versus standard outpatient appointments for patients referred by their general practitioner for a specialist opinion: a randomised trial

P Wallace, A Haines, R Harrison, J Barber, S Thompson, P Jacklin, J Roberts, L Lewis, P Wainwright, for the Virtual Outreach Project Group*



Telemedicine and telecare

Steventon, Newman et al BMJ 2012



BMJ 2012;344:e3874 doi: 10.1136/bmj.e3874 (Published 21 June 2012)

Page 1 of 15

RESEARCH

Effect of telehealth on use of secondary care and mortality: findings from the Whole System Demonstrator cluster randomised trial

© OPEN ACCESS

Largest ever trial (£30m) of remote monitoring for patients with COPD, DM and HF



"More work needed on telehealth"

The Whole System Demonstrators showed that, "if used correctly", telehealth reduced relative death rates* by 45%, NHS resource usage by 15-20% and tariff costs by 8%.



With these striking results and the launch of the industry/NHS funded 3 Million Lives campaign, telehealth is steaming out of its backwater into the clinical mainstream.

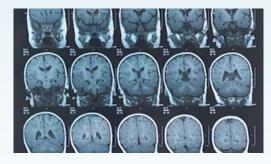
Telehealth has benefits for patients with long-term conditions but despite industry excitement there are still areas of concern, argues Jeremy Wyatt Guardian Professional, Friday 6th Jan 2012



Applications of digital technologies in health care

- Electronic care records (ECRs)
- Research using ECRs and databases
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- Virtual healthcare teams
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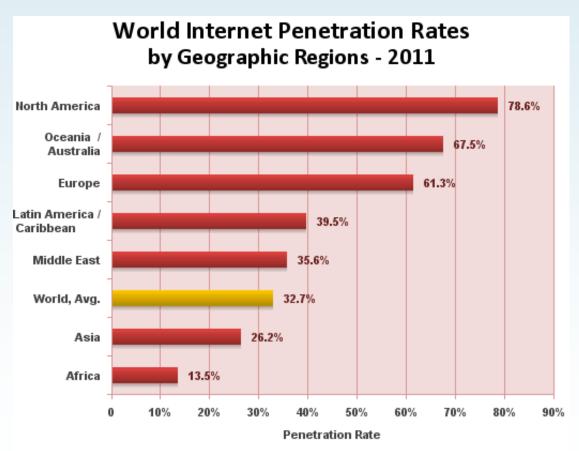








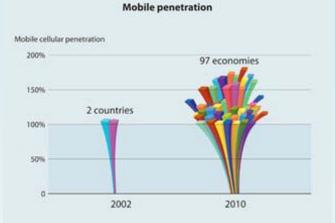
Access to the Internet



Source: Internet World Stats - www.internetworldststs.com/stats.htm Penetration Rates are based on a world population of 6,930,055,154 and 2,267,233,742 estimated Internet users on December 31, 2011. Copyright © 2012, Miniwatts Marketing Group



Mobile phone penetration



- Mobile cellular penetration in the developing world reached 70% at the end of 2010
- ~ 100 economies had mobile cellular penetration over 100% – and 17 economies had penetration rates above 150%.
- Two-thirds of people in Least Developed
 Countries now have mobile phone coverage
- African penetration up to 45.2%.



Internet & mobile technologies for patients

- General health information
- Long term conditions eg diabetes
- •Mental health:
 - anxiety,
 - depression
- Behavioural change
 - smoking cessation
 - physical activity
 - diet
 - alcohol











Internet interventions for depression and anxiety disorders – CRD 2012





The efficacy of internet interventions for depression and anxiety disorders: a review of randomised controlled trials

Griffiths KM, Farrer L, Christensen H

CRD summary

This review found that internet interventions for depression and anxiety disorders offered promise for use as self-help applications for consumers or as an adjunct to usual care. These conclusions were supported by the data, but should be interpreted with caution due to lack of statistical data and the possibility of review bias.



Digitally mediated interventions for smoking cessation: Internet-based – Cochrane 2010

Internet-based interventions for smoking cessation (Review

Civljak M, Sheikh A, Stead LF, Car J



"Results suggest that some Internet-based interventions can assist smoking cessation especially if the information is appropriately tailored to the users and frequent automated contacts with the users are ensured. However trials did not show consistent effects".

Internet-based interventions for smoking cessation (Review)

Copyright © 2010 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.



Digitally mediated interventions for smoking cessation: mobile phones – Cochrane 2009

Mobile phone-based interventions for smoking cessation (Review)

Whittaker R, Borland R, Bullen C, Lin RB, McRobbie H, Rodgers A



"The current evidence shows no effects of mobile phone-based smoking cessation interventions on long term outcome. While short term results are positive, more rigorous studies of long term effects of mobile phone-based smoking cessation interventions are needed"

Mobile phone-based interventions for smoking cessation (Review)

Copyright © 2009 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.



The txt2stop study - Lancet 2011



The Lancet, <u>Volume 378, Issue 9785</u>, Pages 49 - 55, 2 July 2011 doi:10.1016/S0140-6736(11)60701-0 ? Cite or Link Using DOI

This article can be found in the following collections: Published Online: 30 June 2011

Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial

Dr <u>Caroline Free</u> PhD a <u>Marcoline Free</u> PhD a <u>Marcoline Free</u> PhD a, <u>Rosemary Knight</u> RGN a, <u>Steven Robertson</u> BA a, <u>Robyn Whittaker</u> MPH b, <u>Phil Edwards</u> PhD a, <u>Weiwei Zhou</u> MSc a, Prof <u>Anthony Rodgers</u> PhD c, Prof <u>John Cairns</u> PhD a, Prof <u>Michael G Kenward</u> PhD a, Prof <u>Ian Roberts</u> PhD a

Single-blind randomised trial involving more than 5,500 smokers across the UK. Quit rates for txt2stop – 10.7 per cent vs 4.9 per cent for controls at 6 months.



Behavioural change – meta-analysis of impact of design and mode of delivery

- 85 interventions reviewed
- Impact of interventions highly variable
- More extensive use of theory associated with larger effect sizes
- Stress management and general communication skills training have greatest impact
- Normative feedback best





Improved effectiveness is associated with:

- more extensive use of theory (esp Theory of Planned Behaviour)
- inclusion of more behavioural techniques
- use of additional modes of interacting, esp text messages





Web-based interventions for alcohol consumption – a systematic review

"The current review is the first to systematically evaluate the effectiveness of such interventions and has found inconsistent results across studies. Process research suggests that web-based interventions are generally well received. However further randomized control trials are needed to investigate their effectiveness".



Bewick et al, 2008 Preventive Medicine



Riper et al 2007 - Addiction 2007

RESEARCH REPORT

doi:10.1111/j.1360-0443.2007.02063.x

Web-based self-help for problem drinkers: a pragmatic randomized trial

Heleen Riper, Jeannet Kramer, Filip Smit, Barbara Conijn, Gerard Schippers & Pim Cuijpers

Trimbos Institute, Utrecht, the Netherlands

Population based trial of 261 adult problem drinkers - web based self help intervention associated with 17% reduction in cases versus 5% in brochure control group.



Cunningham et al - Addiction 2009

Addiction



RESEARCH REPORT

doi:10.1111/j.1360-0443.2009.02726.x

A randomized controlled trial of an internet-based intervention for alcohol abusers

John A. Cunningham^{1,2}, T. Cameron Wild³, Joanne Cordingley¹, Trevor van Mierlo⁴ & Keith Humphreys⁵

Centre for Addiction and Mental Health¹ University of Toronto, Toronto, Ontario, Canada,² University of Alberta, Edmonton, Alberta, Canada,³ Evolution Health Systems Inc., Toronto, Ontario, Canada⁴ and Veterans Affairs and Stanford University Medical Centers, Stanford, CA, USA⁵

Of 185 problem drinkers, those provided access to the CYD displayed a six to seven drinks reduction in their weekly alcohol consumption (a 30% reduction in typical weekly drinking) at both the 3- and 6-month follow-ups compared to a one drink per week reduction among control group respondents.



Kypri et al - Arch Int Med 2009

ORIGINAL INVESTIGATION

Randomized Controlled Trial of Proactive Web-Based Alcohol Screening and Brief Intervention for University Students

Kypros Kypri, PhD; Jonathan Hallett, BA; Peter Howat, PhD; Alexandra McManus, PhD; Bruce Maycock, PhD; Steven Bowe, MMedStat; Nicholas J. Horton, ScD

RCT of proactive web-based screening and intervention. 2435 screen positive undergraduate students randomised to either Check Your Drink (CYD) or no intervention. Intervention found to reduce drinking by 6 drinks at 3m and 6m compared to 1 drink in controls



Wallace et al - PLoS 2011



On-line Randomized Controlled Trial of an Internet Based Psychologically Enhanced Intervention for People with Hazardous Alcohol Consumption

Paul Wallace¹*, Elizabeth Murray¹, Jim McCambridge², Zarnie Khadjesari¹, Ian R. White³, Simon G. Thompson³, Eleftheria Kalaitzaki⁴, Christine Godfrey⁵, Stuart Linke⁶

On line RCT involving 7935 self selected problem drinkers allocated to psychologically enhanced website or minimally interactive site. Large and clinically significant fall in alcohol consumption across both arms at 3m (c 21u / wk) sustained at 12 m (c 25 u/wk), with parallel improvement in secondary outcomes. Psychological enhancement did not confer benefit in comparison with minimally interactive website



Conclusions from DYD RCT



- No evidence of advantage of psychological enhancement
- Striking improvements in both groups possibly due to:
 - regression to mean,
 - reactivity of assessment
 - Hawthorne effect
 - self selection by subjects already decided to make change
- Similar results to Sobell trial of leaflet for Self Change

	Geometric mean (SD)		Adjusted ratio (intervention : control) of geometric
Time point	Intervention	Control	means (95%CI)
Baseline (n=7,935)	46.3 (31.8)	45.7 (30.6)	-
1 month (n=2,067)	27.1 (23.1)	27.1 (22.5)	0.98 (0.90 to 1.07)
3 months (n=3,529)	26.4 (23.0)	25.6 (21.5)	1.03 (0.97 to 1.10)
12 months (n=854)	22.0 (20.0)	23.5 (21.0)	0.99 (0.85 to 1.15)



"Promoting Self-Change from alcohol problems: mechanisms of change in a community-based intervention".

- 1-year follow up found no differences in drinking behavior between the groups
- Both groups had very substantial reductions in their drinking 1-year pre- to 1-year post-intervention.
- Many changed after seeing the advertisement, and before receiving the assessment materials

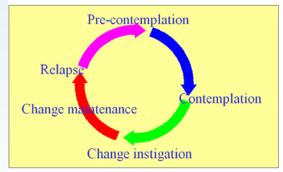


Clinician advice for behavioural change

- Clinicians are well placed to provide opportunistic behaviour counselling
- In UK, patients consult GP on average
 5.5 times a year 5
- Behavioural counselling demonstrated to be cost effective for smoking and alcohol
- Key components:
 - therapeutic relationship
 - signalling by GP of interest/concern







after Prochaska and Di Clemente 1994



GP facilitated access



Facilitated access by GPs* is designed to encourage use of the digital intervention, and in the UK is familiar to primary care and mental health professionals through the established model of providing facilitated access to computerised cognitive behavioural therapy programmes such as Beating the Blues and Fear Fighter

^{*} Department of Health. Improving Access to Psychological Therapies Implementation Plan: National guidelines for regional delivery. London: Department of Health; 2008.



Facilitated access to eBI- a solution to the "know-do" gap for SBI?

- Facilitated access in primary care demonstrated to increase impact on users in case of websites for anxiety and depression
- Growing evidence on effectiveness of alcohol reduction websites
- GPs signposting of risky drinkers to use a website:
 - less time consuming than face-to-face BI
 - less risk of stigmatising / confidentiality issues



Pilot of implementation of facilitated access to DYD in 2 NHS primary care settings

- London primary care trusts
 - Kingston GPs
 - Islington integrated into IAPT (Improving Access to Psychological Therapies) service
- Automated baseline assessment
- Introduction to DYD
- Provision of personalised login details
- Optional follow-up phone-calls
- 31 referrals in pilot



Facilitated access to eBI: the ODHIN and EFAR trials



- International studies on eBI
- ODHIN designed to determine impact of access to eBI on GP activity
- EFAR designed to :
 - determine effectiveness of eBI relative to face to face intervention (EFAR FVG)
 - determine effectiveness relative to simple computer printout (EFAR UKAIS)



The ODHIN trial

ODHIN: Optimizing delivery of health care interventions:

- Funded by Framework 7 EU
- WP5 : Cluster RCT to evaluate impact on SBI activity of:
 - education and training
 - financial incentives
 - GP facilitated access to eBI www.healthierdrinking choices.org

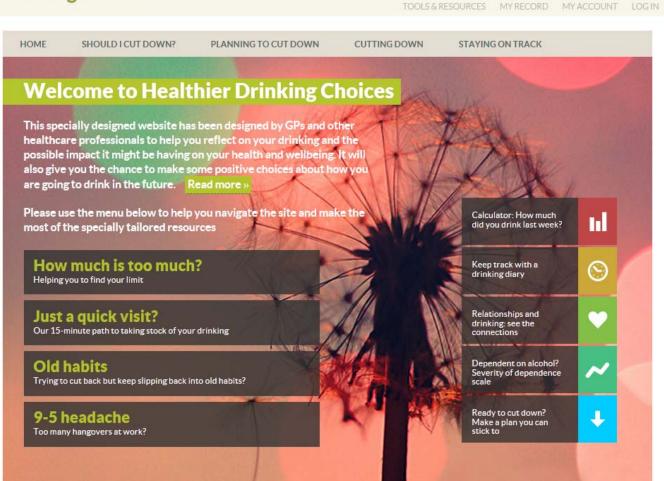








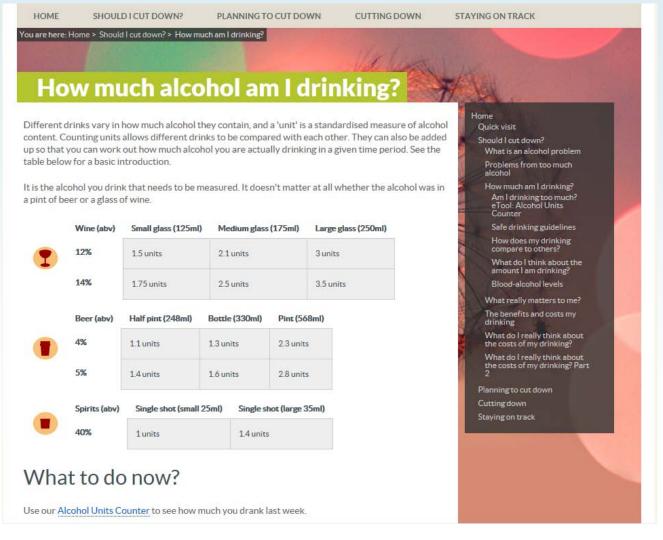




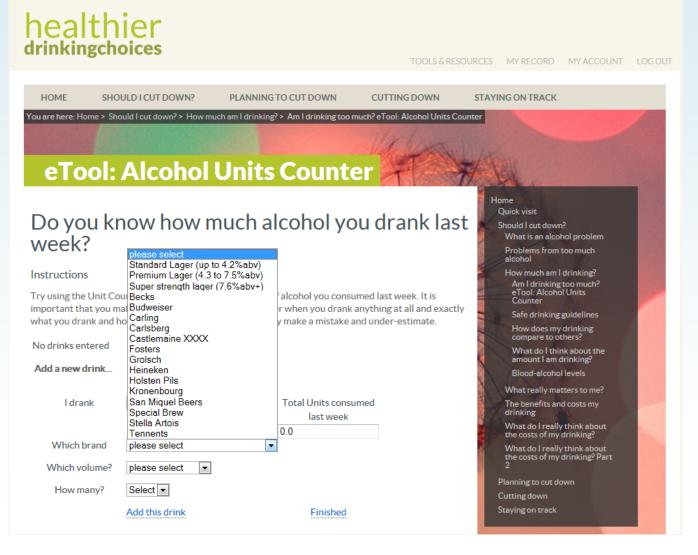




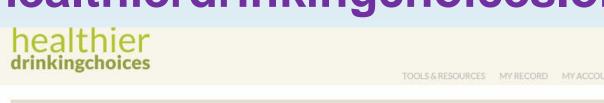












CUTTING DOWN

You are here: Home > Should I cut down? > How much am I drinking? > Am I drinking too much? eTool: Alcohol Units Counter

PLANNING TO CUT DOWN

eTool: Alcohol Units Counter

Do you know how much alcohol you drank last week?

I drank	Brand	Volume	How many	
Lager	Standard Lager (up to 4.2%abv)	Bottle (330ml)	18	remove
Lager	Carlsberg	Bottle (330ml)	16	remove

Total units last week: 41.91

HOME

What to do now?

Compare your current drinking with the UK Safe Drinking Guidelines.

Find out how your drinking compares to others in the UK.

SHOULD I CUT DOWN?

Learn about Blood-Alcohol Levels and its effects.

Home Quick visit

STAYING ON TRACK

Should I cut down?

What is an alcohol problem

Problems from too much alcohol

How much am I drinking?

Am I drinking too much?
eTool: Alcohol Units
Counter

Safe drinking guidelines

How does my drinking compare to others?

What do I think about the amount I am drinking?

Blood-alcohol levels

What really matters to me?

The benefits and costs my drinking

What do I really think about the costs of my drinking?

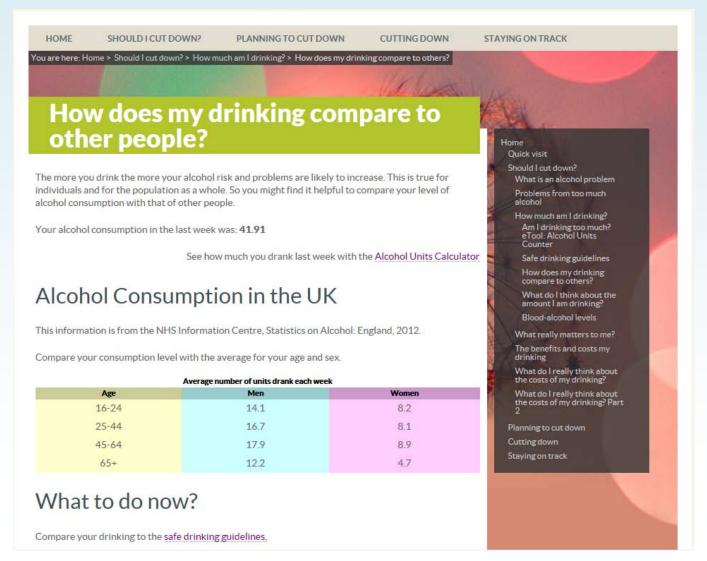
What do I really think about the costs of my drinking? Part 2

Planning to cut down

Cutting down

Staying on track

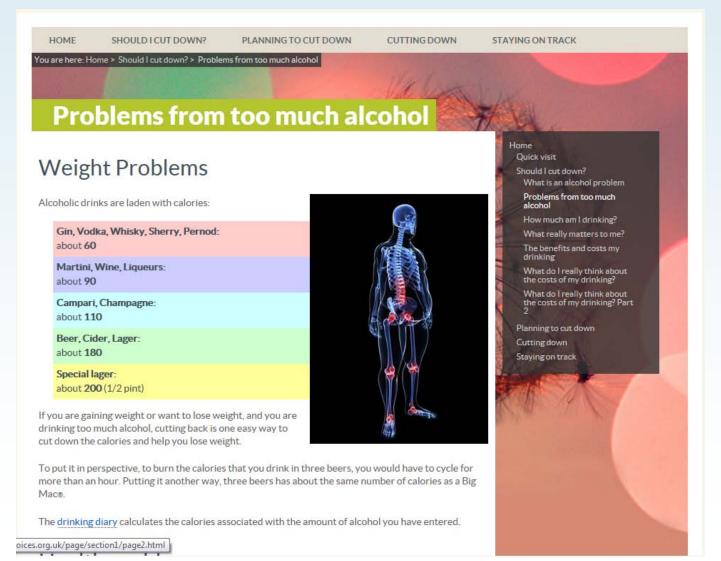




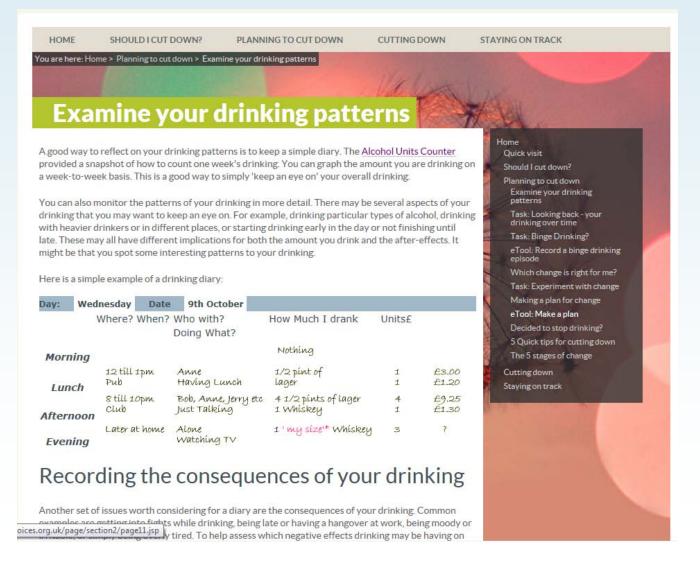




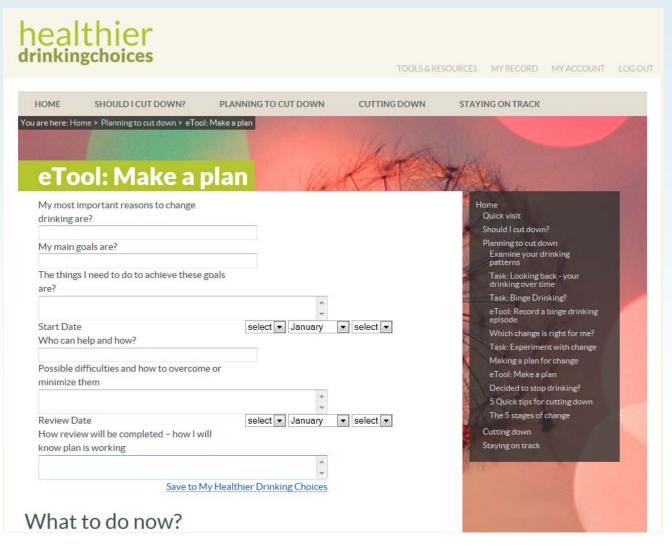














GP facilitated access leaflet

Why am I giving you this personalized referral leaflet?

I am giving you this personalized referral leaflet with your own Internet login number because I would like you to make use of the Internet based advice resources at

www.healthierdrinkingchoices.org.uk

This specially designed website which can only be used following a GP referral will help you reflect on your drinking and the possible impact it might be having on your health and wellbeing. It will also give you the chance to make some positive choices about how you are going to drink in the future.



GP facilitated access leaflet

This leaflet gives you details of how to log on using the personalized GP referral username and password which you'll find in the box below. Either of these can be changed once you have logged on to create your own personal profile if you wish.

Either way, your data is completely confidential and no-one else will be able to see which information you enter on the website.

What to do now?

Please find a time over the next 2-3 days when you are able to use an appropriate way to access the Internet at home or elsewhere.

Once you are online, please access the HealthierDrinkingChoices website

either by typing "healthydrinking choices" into your browser by going directly

to www.healthierdrinkingchoices.org.uk

Once you have found the website, please log on using the personalized username and password below:

Your username: 01003

Your password: XXXXX



The ODHIN and EFAR trials on facilitated access to eBI



- International studies on eBI
- ODHIN designed to determine impact of access to eBI on GP activity
- EFAR designed to :
 - determine effectiveness of eBI relative to face to face intervention (EFAR FVG)
 - determine effectiveness relative to simple computer printout (EFAR UKAIS)



The EFAR trials: an integrated web-based approach to GP facilitation

- EFAR: <u>effectiveness of facilitated</u> access to <u>alcohol reduction websites</u>
- Patients invited for digitally mediated SBI using uniquely numbered practice brochures
- Brochures provide personalised code for access to e-screening: AUDIT C
- Digitally mediated GP facilitation for screen positive patients



The EFAR FVG trial

- Non-inferiority RCT of eBI vs faceto-face intervention
- Funded by Italian Ministry of Health
- Led by Piero Struzzo in Region of <u>Friuli-Venezia-Giulia</u>, Italy
- Digitally mediated GP facilitation for patients allocated to eBI





Digitally mediated GP facilitation

- Tailoring of message to reflect organisational and personal identity.
- Menu-driven facility including:
 - photographs of GP/Practice
 - written message from GP
 - audio/video recorded message from GP





Digitally mediated GP facilitation





Digitally mediated GP facilitation - with video



Complimenti Richard!



Complimenti per aver completato la registrazione sul sito!

Ti consiglio di cercare di seguirlo il più possibile, fornendo informazioni e dati aggiuntivi, in modo che il sito ti dia sostegno.



dott. Alessandra Struzzo



EFAR UKAIS



- RCT of eBI vs simple computer printout
- Funded by BUPA conditional on outcome of pilot phase of EFAR FVG
- Multi-country: <u>UK</u>, <u>Australia</u>, <u>Italy</u>, <u>Spain</u>
- Digitally mediated GP facilitation for intervention group



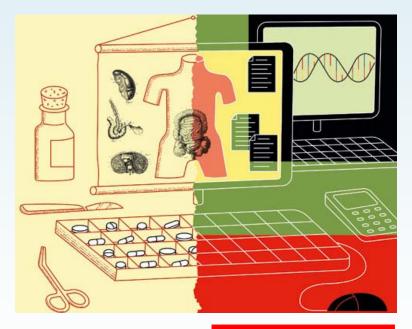
Digital technologies SBI for alcohol - what can we conclude?

- Evidence on effectiveness of digital technologies is encouraging but not overwhelming
- Equity of access remains an issue
- Acceptability for patients high but questions remain about how healthcare professionals will react
- Digital offers potential to substantially increase SBI implementation, but more research is needed
- Digital has potential to radically change the delivery of SBI in the future



Digital technologies and the future

"The convergence of biology and engineering is turning health care into an information industry. That will be disruptive but also hugely beneficial to patients"





Vijay Vaitheeswaran Apr 16th 2009 Senior correspondent, expert on Global Health

UCL

Predictions.....

- Digital will be used increasingly for training and support for SBI
- Digital will be increasingly used for SBI in a wide range of settings: eg: health and social care, criminal justice, the workplace and public health
- Digital SBI will become embedded in primary healthcare through the Virtual General Practice Environment
- Inebria will play a key role as the forum for review of evidence







Points covered

- Application of digital technologies to healthcare
- Internet and mobile phone technologies for mental health & behavioural change
- Evidence on Internet based alcohol screening and brief interventions
- Potential to use eBI in healthcare settings eg through GP facilitated access





DYD RCT main results

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Baseline (n=7,935)	46.3 (31.8)	45.7 (30.6)	-	
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Mobile phone penetration



9 July 2010 Last updated at 07:23 ET

Over 5 billion mobile phone connections worldwide

More than a billion mobile phone connections have been added to the global tally in just 18 months, according to Wireless Intelligence.

There are now more than five billion connections worldwide.

In many regions, penetration exceeds 100%, where there is more than one connection per person in the country.

Ben Wood, mobile phone analyst at CCS Insight said the mobile phone may be "the most prolific consumer device on the planet".



Mobile phones have taken the world by storm



Applications of digital technologies in health care

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- Telemedicine and telecare
- Virtual healthcare teams
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