Health Technology Advancements to Improve Health for those with Substance-related Disorders:
Nurses leading development….

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Aim of this paper

> **This paper provides a brief review of existing health and social care technology developments for use for those with substance-related disorders. It also provides recommendations for further nursing leadership to improve health outcomes of communities, families and individuals affected by substance-related disorders.**

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Context: New Technologies and Nursing

> **Nurses are key leaders in the expansion of public health and personal health, lifestyle improvement systems and technologies in diverse health and wellbeing settings internationally.**

> **Nurses are now developing and using new technologies for health and social care which are easily accessible, effective, inexpensive, and available to all. Public health and individual outcomes may radically improve from the use of new health and social care technologies for those with substance-related disorders.**

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Objectives:

This paper aims to provide professional health leaders with both:

➢ **a brief review of existing health and social care technology developments for use for those with substance-related disorders especially - Telecare; cCBT and Apps.**

➢ **Recommendations will also be made for further leadership in this field of Health Technology for its' use and improvement for health outcomes of communities, families and individuals affected by substance-related disorders**

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Telemedicine and Telecare

Q. How do we improve access to health care professionals, assessment, brief intervention, treatment, review and concordance?

Barriers to engagement e.g....

➢ Number of health professionals

➢ Availability of professionals and service users in employment/carers/disability

➢ Travel time to specialists

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What can we do about these barriers

➢ Find a way for health professionals to see service users without wasting time travelling

➢ Find a way for service users to access professionals without taking lots of time off work, spending money on travel, waiting until problems become worse

Telemedicine/tele-nursing....is a partial solution

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Telemedicine and addictions

- **SBIRT – remote assessment and brief intervention**
- **Motivational enhancement appointment via skype**
- **Relapse prevention – management of high risk situations via skype**
- **Discussion about treatment packages e.g. Alcohol diaries, attendance at NA, use of sponsors, links with peer mentors**
- **Group skype for multi-disciplinary/multiagency meetings e.g. Child protection reviews**

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Literature review – telemedicine and addictions

Ohinmna, A. Chatterly, P. Ngugey, T. Jacobs, P. (2010) Telecare in addiction: a review of the literature. Institute of Health Economics (www.ihe.ca)

The results of this review -

- Internet, computer, and telephone applications in alcohol and smoking addictions were found
- Are at least as effective as conventional services
- There was some evidence from Telecare in the area of illicit drugs applications, but the number of studies was still relatively small (eight studies)

Future studies:

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Literature review – telemedicine and addictions conti…

- There is a need for further studies which use Telecare for gambling addiction
- Although Telecare applications are expected to be less expensive than individual face-to-face therapies, there is no good quality literature in the cost-effectiveness of Telecare applications in the studied addictions.

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How to overcome Barriers

1. Telehealth=Telemedicine >Telepsychiatry
2. Tele-education
3. Social Media
4. Apps

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Leading Change: A Plan for SAMHSA's Roles and Actions (2011-2014)

Strategic Initiative #6: Health Information Technology

➢ The necessary infrastructure and expertise to support the effective use of health information technology is lacking in nearly every community in the United States, particularly among behavioral health providers.

➢ Health information technology is essential to the transformation of the health care delivery system and the promotion of preventive care and patient self-care.

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Telemedicine/Telepsychiatry/ Tele-behavioral Health

➢ Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients' health status. Closely associated with telemedicine is the term "telehealth," which is often used to encompass a broader definition of remote healthcare that does not always involve clinical services. Videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth. [ATA, 2010].

   Telemedicine can bridge this gap by providing access to a wider selection of health care services for rural residents.

➢ **WYOMING**: Behavioral health issues are prevalent in the state as well. The 2010 Behavioral Risk Factor Surveillance Systems (BRFSS) for Wyoming [BRFSS, 2010] reports that:

➢ 4.8% of those Wyoming residents surveyed engaged in "heavy" drinking (over 60 drinks in 30 days for men, 30 drinks in the same period for women);

➢ 3.6% engaged in "extreme" drinking (ten or more drinks on one occasion);

➢ 14.6% engaged in "binge" drinking (four or more drinks on one occasion);

➢ 27.4% of those surveyed currently use some form of tobacco;

➢ 19.1% use tobacco daily;

➢ 19.5% currently smoke cigarettes, while 8.2% use smokeless tobacco.

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Tele-education/Consumer Information

As internet mobility increases, the access to health information spreads, and increasingly we are able to raise awareness about certain health conditions. The Pew Research Center's Internet & American Life Project (California Health Care Foundation, 2011) states that a leading edge of health care is coming from professionals, and consumers as a "I know, and I want to share my knowledge" with those who are not aware.

- 80% of internet users have looked online for information about any of 15 health topics such as a specific disease or treatment. This translates to 59% of all adults.
- 34% of internet users, or 25% of adults, have read someone else's commentary or experience about health or medical issues on an online news group, website, or blog.
- 25% of internet users, or 19% of adults, have watched an online video about health or medical issues.
- 24% of internet users, or 18% of adults, have consulted online reviews of particular drugs or medical treatments
- 18% of internet users, or 13% of adults, have gone online to find others who might have health concerns similar to theirs.

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Tele-education by with Survey Monkey

- Assess Nurses Beliefs and Knowledge about SBIRT

- http://www.surveymonkey.com/

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Example of Social Media Use

- Within the University of Wyoming's Academic Plan for the years 2009 – 2014, it aspires to be one of the nation's best universities.

- UW has wide-ranging expertise in mental health disciplines. To build on this expertise, we urge faculty members in the relevant departments to form an interdisciplinary mental health collaborative, spanning expertise in the Colleges of Health Sciences, Education, Agriculture, and Arts and Sciences.

- Such a collaborative can help organize the university's involvement in mental health issues that are widespread in Wyoming's communities.

- http://www.facebook.com/pages/University-of-Wyoming-Mental-Health-Collaboration/198455780273895?ref=ts

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Boyer, E. W., Fletcher, R., Fay, R. J., Smelson, D., Ziedonis, D., & Pickard, R. W. (2012). Preliminary efforts directed towards the detection of craving of illicit substances: The iheal Project.
Journal of Medical Toxicology: DOI 10.1007/s13181-011-0200-4

➤ A means to detect someone's behavior around substances which cause addiction.

➤ Many behavioral interventions currently available are ones that are difficult to manage outside of controlled settings, such as, the primary care office and clinic.

➤ This work has created interest in developing technologies that are capable and effective in detecting physiological and affective states that potentially indicate that risky behaviors around substances are about to occur.

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Boyer, E. W., Fletcher, R., Fay, R. J., Smelson, D., Ziedonis, D., & Pickard, R. W. (2012), con't

1. Have individuals with a history of substance abuse and PTSD wear a sensor band that measures electrodermal activity, skin temperature, heart rate, and body motion to provide a measure of sympathetic nervous system activity caused by stress or arousal.

2. Once the sensor transmits to the smartphone, the mobile software application monitors and processes the individual's physical data. By detecting an increase in the level of the sympathetic CNS activity, the iheal assesses the environmental and behavioral events occurring which signal a change in the level of stress, drug craving, and activities associated with these increased feelings/thoughts leading to risky behaviors. These in turn, train the smartphone mobile application to reinforce behavioral interventions into an algorithm which continues to download the repeated processes until the iheal identifies the real time drug craving, and delivers personalized, multimedia drug prevention/interventions just at the moment of greatest need to the individual.

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Computerised Cognitive Behavioural Therapy

➤ Evidence based practice – National Institute for Health and Clinical Excellence -

http://publications.nice.org.uk/computerised-cognitive-behaviour-therapy-for-depression-and-anxiety-ta97

- Use for depression 'beating the blues'
- Use for phobias 'fear fighter'
- Range of guidance

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What is computerised CBT?

- **What is cCBT?**
- Computerised CBT is simply CBT delivered by an interactive computer program.
- It guides you through the principles of CBT as a therapist would.
- It helps you to understand the tools and learn the techniques that will modify your thinking.
- It leads you through the various stages of therapy in exactly the same way a therapist would in face-to-face sessions.
- It will respond to your particular circumstances, or your problem, and ensure that the training of new ways of thinking and behaving is completed at a pace you find comfortable.
- Some service users prefer the anonymity.

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Does it help?

- Increases access to help – for many not receiving care at all for depression and phobias
- Provides adjunct to prescribed medication – with better outcomes
- Is anonymous
- No one to please...i.e. No nurse or doctor or therapist to impress
- Easy access to dual diagnosis support for those with addictions
- Has benefits and limitations...

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Apps

Mobile computer applications....check your smart phone...how many do you have?

These small pieces of software are now used by millions of peoples...as millions of people now have software. This is mainly due to the rapid increase of cheap smart phones e.g. SAMSUNG.

They allow what was once face-to-face, and recently desktop or lap top exchanges to occur on hand held phones – 24/7.

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Apps

A look at the apple store will now show you thousands of different applications. One of the recent health related apps is 'itriage' use to identify if you have a health concern...and one that might need help.

This section is focussed on how nurses can become involved with leading the use of 'apps' for the health improvement of individuals, families and communities – especially those affected b addictions.

We are going to explore 'apps' in general, but more particularly a nurse-led action research project, award winning, which is working with service users and carers to develop relapse prevention technology into the 21st century and into the apps field.

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Apps

➢ The History of the Brent Whole Systems Relapse Prevention Model – since 2001.

➢ Continuing work on 'Recovery Maintenance' for dually diagnosed, enduring mental illness, and those with addictions using the award winning 'whole systems relapse prevention' i.e. the 'Brent Model' developed by Jumnoodoo and Coyne with the help of Alan Marlatt and many service users, carers and professionals in north west London. ...

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The literature on RP and our community

➢ **Jumnoodoo, R. Coyne, P. Singaram, E.** (2001) Preventing readmission in mental health. **Nursing times. 97**(23) 48.

➢

➢ **Jumnoodoo, R. Coyne,P. Singaram, E.** (2001) Preventing Relapse. **Therapy Weekly. 15, 4**

➢

➢ **Jumnoodoo, R. Marlatt, A. Coyne, P. Matt, E. Singaram, E. Lambert, L.** (2002) Development of a "whole system approach" to relapse prevention in Brent mental health services. **Nurse2nurse, 2**(7) 46-49.

➢ **Jumnoodoo,R. Coyne,P. Warren,D. Singaram,E. Hamilton-Clarke,A. McElroy,K.** (2003). Reflections on change management and modernisation from a relapse prevention perspective. **Nurse2Nurse. 3** (3) 27-29

➢

➢ **Foster.J.H.Jumnoodoo R (**2008**).**Relapse Prevention in the Serious and Enduring Mental Illness :a pilot study. **Journal of Psychiatric Mental Health Nursing,15** 552-561

➢

➢ **Jumnoodoo.R.T and Coyne. P** (2011) Relapse Prevention In Mental Health :in Practice in Mental Health and Substance Use .**Radcliffe Publishing Ltd, London**

The project has worked with service users and carers proactively, using an action research framework from the begining, and in developing the work further has move into the development of 'apps'.

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Apps and nursing - literature

A brief review of apps and their development and use by nurses includes:

1. Allnurses.com – developing phone apps – entrepreneurs in nursing
2. What is your favourite nursing app?...S. Bassendowski 2011
3. Nursing informatics competencies – self assessment
4. Mac App Store ...NCLEX-RN nursing exam programme

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Apps and nursing - literature

5   Staff development programme ...innovation in product applications
6   Professional development...Plymouth University...nurses opportunities to learn how to develop iphone apps
7   ChecklistRN – nurses developing phone apps
8   Moreschoolnurses.com...government development plans for school nurses (DH 2012)...more use of technology e.g. Text Messaging and Apps.
9   RP – evidence that Text Messaging increases adherence when part of a relapse prevention plan.

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Apps and nursing - literature

10   Baby Tracker: Nursing....apps (2008) for breastfeeding mums to plan and track breast feeding [http://www.intuitive.com/blog/iphone-app-developer-spotlight-darren-andes-baby-tracker-nursing.html] Blog – 2500 lines of codes, 100 hours, Mac OS X language.

11   Uni California SF – Dean David Vlahov - APNs needed to address the Affordable Care Act 2014 – 35 Million uninsured people needing health care. Use of technology seen as key.

12   Computer games to help to improve outcomes and quality of life for people with parkinson's disease and lung cancer.

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Apps and nursing - literature

In conclusion it can be seen that nurses are involved with both developing and using health apps. For both the UK and USA health budgets are tight, demand is increasing, and nurses are needed to develop new methods of prevention ill-health, promoting health, and treating health conditions as cost effectively as possible. New technologies and service user empowerment are key element to the solution.

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Apps – a collaborative research endeavour

Research project....
➢ Lit. search on development of Lifestyle Apps for those affect by addictions? What is the state of the evidence?

➢ **Key Question for practitioners:**
 How to develop smart phone application that will help service users and carers to developed their problem solving skills, be concordant with recovery plans, and maintain recover through relapse prevention?

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Apps – a collaborative research endeavour

Explore and develop pilots, travel through the unknown terrain, receive feedback evaluations from key informants......

Ethical issues –
- genuine joint working with key stakeholders;
- applying key nursing values;
- making sure that all members of society have fair access to effective health care;
- seek peer reviews.

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Apps – a case study - DR CHANGE

- ➤ **Participatory action research project**
- ➤ *Group/community with a 'problem to solve'*
  [Whitehead, J. McNiff, J. (2006) Action Research Living Theory: London: Sage; Winter, R. Munn-Giddings, C. (2001) A handbook for action research in health and social care. London; Routledge]
- ➤ *Problem:* Q. how do we make Relapse Prevention more easily available, in an effective way, to service users and carers....to help them maintain recovery?
- ➤ *Proposed solution*: Use apps as a new technology, easily available, to help reinforce relapse prevention planning and health outcomes. Develop a relapse prevention app.

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Action research ....

- ➤ *How to achieve this solution:*
- ➤ Develop plans to research, design, and produce an app.
- ➤ *Monitor and evaluate: Case study approach.*
- ➤ Keep extensive process records e.g. Minute, surveys via stakeholder and pilot group, evaluation questionnaires and evaluation reports.
- ➤ *Professional evaluation:* present and discuss with professional experts; and monitor and evaluate usage and feedback from service users and carers.
- ➤ *Spin-off...:* Be alert to changes and spin-off opportunities to maximise the impact of Relapse Prevention via. New technologies and partnerships with service users.

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Action Research Case Study – Developing a useful Relapse Prevention Apps with Service Users.

- ➤ Amongst the many changes and solutions which have evolved in response to the original group problem and group solution has been the development of an 'app'. It has been through many stages of development, and via a host of reflective practice activities, the group has learnt much. We are hoping that this presentation is sharing some of our learning!
- ➤ The next series of slides....provide insight to the actual development of the app...

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The advantages of Mobile Apps in the field of wellbeing and lifestyle

1. Widespread ownership of smartphones worldwide
2. Users always keep device on them and close to hand
3. There is a enthusiasm for using apps
4. Strong revenue streams to tap into via purchases and advertising
5. Applications are generally very affordable

DR CHANGE

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Dr Change - Technology DR CHANGE

1. Mobile applications built on a cross-platform technology called HTML 5
2. HTML 5 is an improvement in web standards to add advanced features so web pages can be as user friendly and feature rich as native applications and it can still be packaged into the app stores for sale.

HTML 5

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Dr Change - Technology DR CHANGE

➢ Works on iphone, ipad, android, blackberry and windows phone as well as many others.
➢ The technology is an engine that is separate from the content so it is easy to customise and re-use the technology for different applications.

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Dr.Chloe, Coach, RN, ANP

DR CHANGE

Allow me to introduce you to coach Chloe (fabricated for the presentation)…….

Chloe is our life coach in Dr Change.

She gives the user guidance through the app, and interacts with them.

It's a chance for the user to have 'someone' to complete the app with.

Hello everybody, I hope you are enjoying the presentation!!

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Dr.Chloe, Coach, RN, ANP

DR CHANGE

Affirmation and Facilitative questions:
'Welcome back to your relapse prevention plan …. A few short questions to catch up.

Q. How often did you complete you alcohol diary this week?
0 1 2 3 4 5 6 7 days [select the one that fits]

Q. **How well did your relapse prevention plan work this week – to help you manage your high risk situation?**
|--|
0   5   10
No   useful   worked
Help   everytime

Hello everybody, I hope you are enjoying the presentation!!

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Dr Change – Problem solving DR CHANGE

- The first app product to be released shortly
  It enables the user to build a plan of action to solve any problem they have, for instance weight loss or to save for a car etc
- The user interacts with coach Chloe answering questions to build up their own unique problem solving plan.
- The problem solving is based on relapse prevention principles.
- The app is aimed at a wide group of target users.

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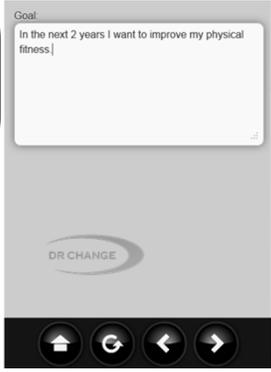## What do our expert peers think?

- Point towards the apps page on DrChange.net where we will also add this information:

  www.drchange.net - Select "Get Our Services" then "Apps" on the menu

  www.sindens.co.uk/apple (apple demo)

  www.sindens.co.uk/otherdevices (demo for other devices)

  Android Store - Search for "Dr Change Problem Solving"

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Conclusions

- Where are the nurses leading this work....?

  See table ahead...

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	Examples of useful progress	Leadership required by nurses for the benefit of services users/carers and communities
Tele-medicine/Telecare	Both telemedicine and Telecare are well developed Nurses are employed to deliver addictions services via these media	What do nurse do to lead in this field? How have nurses evaluated the effectiveness of their practice in this field?
Computerised CBT	National health policy bodies have reviewed the literature and produced guidelines Services users have access to mental health care.	What training have nurses had in developing the software for computerised treatment programmes? Have nurses evaluated the effectiveness of this care for the patients they work with?
Apps	Health and lifestyle improvement apps exist, are growing in number by the minute.	Which nurses are leading the development of apps? Are nurses being trained to deliver and write apps? Which nurses are researching the use of apps in nursing practice?

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Finally...

This paper provided professional health leaders with both:

➢ a brief review of existing health and social care technology developments for use for those with substance-related disorders : Telecare, computerized CBT and Apps development and research.

➢ It has made recommendations for leadership in this field of including the development of software writing skills for nurses e.g. app writing; the evaluation of cCBT; and the development and evaluation of Telecare nursing services.

➢ It has described how nurses are using and developing new technologies in health and lifestyle change for individuals, communities – including those affected by addictions

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Any Questions ?

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