An evidence-based, text messaging solution for clinicians and patients: improving adherence
Academic Disclosure

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- Co-founder, Director WelTel International mHealth Society
- Co-founder, WelTel Incorporated (WelTel Health)
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A solution

Connectedness
Disruptive technology in global health?

Problem: People living with HIV  Response: People on ART  People with mobile phones

Figure 1.1 Estimated number of adults infected with HIV, by WHO region, 1980–2003

Access to antiretroviral treatment, by region, 2002 - 2010

Where to look for growth
Mobile-phone subscriptions, bn

Sources: World Bank; ITU

*OECD members
Effects of a mobile phone short message service on antiretroviral treatment adherence in Kenya (WelTel Kenya1): a randomised trial

Richard T Lester, Paul Ritvo, Edward Millis, Antony Kariri, Sarah Karanja, Michael H Chung, William Jack, James Habyarimana, Mohsen Sadatsafavi, Mehdi Najafiradosti, Carlo A Murray, Benson Estambale, Elizabeth Nyugi, T Ilkka Hall, Lehana Thabane, Lawrence J Gelmon, Joshua Kimani, Marta Adcers, Francis A Plummer

Summary

Background Mobile (cell) phone communication has been suggested as a method to improve delivery of health services. However, data on the effects of mobile health technology on patient outcomes in resource-limited settings are limited. We aimed to assess whether mobile phone communication between health-care workers and patients starting antiretroviral therapy in Kenya improved drug adherence and suppression of plasma HIV-1 RNA load.

Key Results

- Patients randomized to the WelTel intervention were 24% more likely to be adherent than those who received standard care.
- Patients newly initiating ART were 18% more likely to be virologically suppressed at one year when supported by the WelTel intervention.
Our Grand Challenge
WelTel Kenya2: Improving Global Health
One Text at a Time (HIV, TB, MNCH)

Kenya’s Northern and Arid Lands
The Product: 2-way SMS outreach and client management
Figure. Costs of SMS Intervention vs. Costs Savings over 3 years for PEPFAR Global Cohort on ART (2.485M patients)
Canada & US: reverse innovation?

One common platform supports HIV, TB, Asthma, MNCH, immunization, and other health outcomes. (integrated care, primary care) Leave no one behind.

Canada:
- British Columbia (Vancouver, Prince George, Haida Gwaii)
- Saskatchewan

USA:
- Washington, USA

Africa:
- Kenya, Ethiopia
- Rwanda, Uganda
Ongoing Research

Outcomes/impact
Qualitative studies
Behavioural research
Economics
Implementation Science
Knowledge translation

>7 RCTs

WelTel Big River (SK)
WelTel eAsthma (BC)
WelTel Kenya2
EmPhAsIS (BC)
mHealth International Roundtable
Global Health Research Collaboration
The Cedar Project (BC)
WelTel Oak Tree (BC)
WelTel Retain (Kenya)
WelTel GCC1 (Kenya)
SMS Uganda
EPIC (San Francisco)
WelTel LTB1 (BC)
WelTel BC1 Oak Tree Pilot
HIV mHealth Workshop
WelTel LTB1 Pilot
WelTel Kenya1

USE OF THE WelTel MOBILE HEALTH INTERVENTION AT A TUBERCULOsis CLINIC IN BRITISH COLUMBIA: A PILOT STUDY

Mia L. van der Kop, MSc1,2, Jasmina Memetovic, MSc3, Jan Hajek, MD3, Natasha Van Borek, MA4, Darlene James Johnst

Health Care Providers’ Perspectives on a Weekly Text-Messaging Intervention to Engage HIV-Positive Persons in Care (WelTel BC1)

Melanie C. M. Murray1,2,3, Sara O’Shaughnessy2, Kirsten Smillie4, Natasha Van Borek4,5, Rebecca Graham2, Evelyn J. Maan2, Mia L. van der Kop1,6, Karen Friesen2, Arianne Albert3, Sarah Levine4, Neora Pick1,2,3, Gina Ogilvie4, Deborah Money2,3,7, Richard Lester1,4, the WelTel BC1 Study Team

Empowering pharmacists in asthma management through interactive SMS (EmPhAsIS): study protocol for a randomized controlled trial

Mia L. van der Kop,1,2, Jasmina Memetovic,3, Anil Patel,4, Fawziah Marra,5, Mohsen Sadatsafavi,6, Juan Hajek,6, Kirsten Smillie,7, Lehana Thabane,6, Darlene Taylor,3,7, James Johnston,3, Richard T. Lester6

Open Access

The effect of communication on treatment completion among patients with latent tuberculosis infection: study protocol for a randomized controlled trial (WelTel LTBI)

R. Galo, J. Mark FitzGerald, Penelope Brasher, and Carlo A Marra
Ask, Don’t Tell — Mobile Phones to Improve HIV Care

TO THE EDITOR: Almost all health care is voluntary: patients choose when to engage in care, when to take their medicine (if they choose to take it), and whether to return for follow-up visits. In human immunodeficiency virus (HIV) infection and other chronic diseases, the benefits of medication adherence for the patient and public health are tremendous. Mobile health — the use of mobile devices such as cell phones to improve health outcomes and health care services

Lester R. NEJM 2014
One-way versus two-way text messaging on improving medication adherence; meta-analysis of randomised trials

David S. Wald, Shahena Butt, Jonathan P. Bestwick

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<thead>
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The Behaviour Change Wheel [ref: Michie 2011].

Figure 1 Meta-analysis plot of randomised trials of text messaging on medication adherence according to use of one-way messaging and two-way messaging

The American Journal of Medicine, 2015  http://dx.doi.org/10.1016/j.ajmmed.2015.05.035
The cost of non-adherence in Canada has been estimated between $7-9 billion annually (Coambs 1995). ... The government of Canada considers an intervention to be cost-effective if it costs less than $50,000/Quality adjusted life year (QALY). ... Our analysis determined the incremental cost-effectiveness ratio for our base case model is $32,353 / QALY and it can decrease to $16,878 when the effect of the SMS intervention on HIV transmission and the mental health of patients are considered. ... The model therefore suggests that the intervention can lead to improved health and productivity in HIV patients, and has the potential to be cost saving to the health system by reducing other costs associated with morbidity.
Challenges for scale

Research vs. Service Delivery
Technology that works (KISS!)
Technology that can scale (Server-based)
Technology that can reach (SMS, KISS!)
Business/sustainability model – socially responsible licensing
Privacy, security, and standards
Implementation/adoPTION – disruptive change?

- Implementation science (CFIR)
Vision:
One product
For the world

https://demo.weltel.org/
Acknowledgements (thanks!)
"It takes a lot of hard work to make something simple, to truly understand the underlying challenges and come up with elegant solutions."

XX on the beauty of simplicity.