

Impact case study (REF3b)

<p>Institution: London School of Hygiene & Tropical Medicine (LSHTM)</p>
<p>Unit of Assessment: UoA2 – Public Health, Health Services & Primary Care</p>
<p>Title of case study: Smoking cessation support by text message: the impact of the txt2stop trial</p>
<p>1. Summary of the impact The txt2stop trial, led by LSHTM, provided robust evidence that smoking cessation support delivered by text messaging doubles biochemically verified quitting at six months and is highly cost-effective. The research resulted in a new smoking cessation service delivered by text message in England, with over 34,000 smokers having joined the programme by the end of March 2013. The research was noted in international forums and used by WHO in a presentation to member countries; at least four countries have taken steps to roll out their own programmes. The trial findings received exceptionally wide media coverage in 2011.</p> <p>2. Underpinning research Smoking continues to cause more preventable deaths than anything else in the UK and worldwide – nearly 80,000 in England alone during 2011, according to government figures. Around half of current smokers will be killed by their habit if they continue to smoke. The UK government aims to reduce the number of smokers in England by around 210,000 each year, with campaigns to help people stop smoking being an important plank in its strategy.</p> <p>Dr Caroline Free, Senior Lecturer (at LSHTM since 2003, then Lecturer), led the txt2stop trial, a single blind randomised controlled trial evaluating the effect of smoking cessation support delivered by text message on biochemically verified continuous abstinence at six months. The trial was undertaken between October 2007 and October 2010. The academic co-investigators included Professor Ian Roberts (LSHTM), Professor John Cairns (LSHTM), Dr Robyn Whittaker (University of Auckland), Professor Anthony Rodgers (The George Institute, Sydney, Australia), Dr Phil Edwards (LSHTM) and Professor Mike Kenward (LSHTM). The LSHTM team were all based at the School throughout the trial. A previous New Zealand based trial (the STOMP trial) had suggested that smoking cessation support delivered by text messaging was effective in the short term; Free and her team modified and developed STOMP's approach and were the first to reliably report the long-term effects of the intervention.</p> <p>As part of the research, smoking cessation counsellors, cognitive behavioural therapists and 62 potential participants reviewed all text messages from STOMP in a series of focus groups, and modifications were made based on their input. The LSHTM team added additional content to the intervention, employing a wider range of behaviour change techniques including feedback regarding the physical benefits achieved, advice and support in using nicotine replacement therapy and specific content designed to reduce relapse.^{3.1, 3.2}</p> <p>5,800 smokers who were willing to make an attempt to quit were randomly allocated to txt2stop, comprising motivational messages and behavioural change support, or to a control group that received text messages unrelated to quitting.^{3.3} Outcome assessors were masked to treatment allocation. The primary outcome was self-reported continuous abstinence biochemically verified at six months. All analyses were by intention to treat.</p> <p>Biochemically verified continuous abstinence at six months was significantly increased in the txt2stop group, with txt2stop proving successful in 10.7% of cases versus 4.9% in the control group. The study found that txt2stop worked well for all ages and across all social groups.^{3.3}</p> <p>Free and colleagues thus demonstrated that the txt2stop mobile phone text messaging smoking cessation programme substantially increased quit rates at six months.^{3.3}</p> <p>The cost-effectiveness analysis demonstrated that the intervention was cost-effective and cost-saving when the future NHS costs saved (as a result of reduced smoking) are included.^{3.4} Free and colleagues also conducted a carbon footprint analysis of the smoking cessation support</p>

delivered by text message and demonstrated that carbon emissions were low in comparison with the health gains produced.^{3,5}

3. References to the research

3.1 Free, C (2012) Developing and adapting a text messaging intervention for smoking cessation from New Zealand for the United Kingdom, in J Donner and P Mechael (eds), *mHealth in Practice: Mobile technology for Health Promotion in the Developing World*. London: Bloomsbury Academic, pp. 46–61. No citation information available for book chapter

3.2 Free, C, Whittaker, R, Knight, R, Abramsky, T, Rodgers A and Roberts, IG (2009) Txt2stop: a pilot randomised controlled trial of mobile phone-based smoking cessation support, *Tobacco Control*, 18(2): 88–91, doi: 10.1136/tc.2008.026146. Citation count: 25

3.3 Free, C, Knight, R, Robertson, S, Whittaker, R, Edwards, P, Zhou, W, Rodgers, A, Cairns, J, Kenward, MG and Roberts, I (2011) Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial, *Lancet*, 378(9785): 49–55, doi: 10.1016/S0140-6736(11)60701-0. Citation count: 68

3.4 Guerriera, C, Cairns, J, Roberts, I, Rodgers, A, Whittaker, R and Free, C (2013) The cost-effectiveness of smoking cessation support delivered by mobile phone messaging: txt2stop, *European Journal of Health Economics*, 4(5): 789–797, doi: 10.1007/s10198-012-0424-5. Citation count: 1

3.5 Bodurtha Smith, AJ, Tennison, I, Roberts, I, Cairns J and Free, C (2013) The carbon footprint of behavioural support services for smoking cessation, *Tobacco Control*, 22(5): 302–307, doi: 10.1136/tobaccocontrol-2012-050672. Citation count: 1

Key grants

Free, Roberts, Cairns, Edwards, Knight, Rodgers, Whittaker, Txt2stop: A Trial of Mobile Phone-based Smoking Cessation Support, UK MRC, 4/2007–11/2010, £1,458,261, UK MRC grant supplement, 4/2007–11/2010, £240,000.

4. Details of the impact

The research directly resulted in a new smoking cessation support service in England delivered by text message, with tens of thousands of smokers signing up, as well as considerable national and international public interest in the txt2stop trial findings. Similar schemes are in the early stages of roll-out in several other countries.

Following the publication of the paper in *The Lancet*^{3,3} in 2011, the Tobacco Control Marketing Team for the Department of Health (DH) in England approached Free to help them develop a new text messaging service. Free advised the DH regarding the text message content for the intervention and provided extensive feedback on the messages written. She also gave advice regarding the design of the intervention covering the delivery system requirements, message frequency and the interactive features required.^{5,1} The service was made available free at the point of delivery from the NHS Stop Smoking website in January 2012.^{5,2} By the end of March 2013, over 34,000 smokers had joined the programme. The DH Senior Campaigns Manager states that the service ‘continues to be a great success’ and that ‘we look forward to continuing to work with you, and particularly on the academic evaluation to compare the success rates of the 12 week programme to the 28 day programme’.^{5,3}

Free was invited to present her research findings to the European Society for Research on Nicotine and Tobacco in Helsinki in 2012; around 100 delegates listened to her presentation.^{5,4} She was also asked to present her findings at the Royal College of General Practitioners conference in the UK twice, in 2011 and 2012,^{5,5, 5,6} with around 100 GPs attending the first time. The second time it was a plenary presentation at a conference attracting over 4,000 GPs. Her paper was voted the research paper of the year by the Royal College of General Practitioners in

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the primary care category. The research and the new service also received the BUPA Healthy Lives Prize 2012, an award which honours research enabling sustained behaviour changes towards a healthy lifestyle.^{5,7}

As a result of presenting her findings, Free received a number of enquiries from international organisations. WHO used the txt2stop campaign in a presentation and panel discussion for member states focused on mHealth (health-related messages delivered by mobile phone) in Geneva in May 2013. The event was hosted by Costa Rica, which in April 2013 had become the first to roll out its own equivalent of the txt2stop campaign. At least 175 delegates from WHO member states, civil society, private sector representatives and the media attended; Turkey, Israel and Estonia were shown to have taken steps to introduce mHealth campaigns to help people stop smoking. WHO invited Free to be a member of the WHO informal working group on m-cessation in recognition of her 'leadership and experience in m-cessation'.^{5,8}

In the USA, Agile Health – a commercial provider of mobile health care engagement solutions – based their Kick Butts programme, launched in 2012, on the LSHTM and STOMP trials.^{5,9} A technologically improved version, Kick Butts 2.0, offering Facebook integration and a Spanish language version among other things, was launched in January 2013. By the middle of 2013, 1,000 people had signed up to Kick Butts.

The research received extensive media coverage in June 2011, appearing in national and international newspapers, on radio, television and the internet. Examples include a live interview Free gave on the *Today* programme on BBC Radio 4; an interview for SKY News radio, syndicated for 300+ UK commercial radio stations; and interviews on three major local BBC radio stations (London, Sheffield, Three Counties). There was also extensive coverage in the print media, including the *Daily Mail* and local papers. Examples of online coverage included Bloomberg, BBC News online and Guardian online. The research findings were also picked up by news agencies such as Reuters and the Press Association. Put together, the coverage in June 2011 would have reached millions of people in the UK, widely raising awareness and understanding of the effectiveness of text messaging for people trying to quit smoking.^{5,10}

Internationally, too, the research findings were very widely reported. Numerous TV outlets in Bangladesh, Brunei, India, Hong Kong, Indonesia, Malaysia, Pakistan, Taiwan, Thailand and Vietnam picked up a newsreel produced by AP in 2011, featuring Free talking about her findings. Free was also interviewed by *USA Today* (June 2011), and a video release made available by LSHTM was widely used.^{5,10}

5. Sources to corroborate the impact (indicative maximum of 10 references)

5.1 Head of CRM, Department of Health regarding Dr Free's input in developing the new service.

5.2 Department of Health (2013) Smokefree: support straight to you, wherever you are, viewed 30 October 2013, <http://smokefree.nhs.uk/ways-to-quit/support-on-your-mobile/> (accessed 30 October 2013) (citing our involvement in the development of the programme).

5.3 Senior Campaigns Manager, Tobacco Control Marketing Team, Department of Health, regarding the number of smokers using the programme and the DH evaluation of the new service.

5.4 Free, C (2012) Smoking cessation support delivered via mobile phone text messaging (txt2Stop), paper presented at the 14th Annual Meeting of the Society for Research on Nicotine and Tobacco (SNRT) Europe, 30 August–2 September, Helsinki, Finland, 2013, <http://www.srntheurope.org/assets/Abstract-Book-Final.pdf> (accessed 30 October 2013) (see pp. 9, 13, 30, 49).

5.5 Society for Academic Primary Care, invitation letter to present the txt2stop trial results at the RCGP conference 2011.

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5.6 Royal College of General Practitioners (2012) Innovative quit smoking programme wins national award (press release, 19 June 2012), <http://www.rcgp.org.uk/news/2012/june/innovative-quit-smoking-programme-wins-national-award.aspx> (accessed 30 October 2013).

5.7 BUPA Foundation (2012) Healthy Lives Prize, <http://www.bupafoundation.co.uk/research-prizes/2012-healthy-lives-prize> (accessed 30 October 2013).

5.8 WHO, copy of emails outlining the influence of the txt2stop trial on the WHO m-health smoking cessation programme and inviting Free to be a member of the WHO informal working group on m-cessation.

5.9 Agile Health Inc, Kick Buts, <http://www.agilehealth.com/#!/services/ca4p> (accessed 30 October 2013).

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http://www.lshtm.ac.uk/research/publicationsandimpact/casestudies/carolinefree_txt2stop.html