

Abstract

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. WeTel Kenya¹ was a multisite randomised clinical trial of HIV-infected adults initiating antiretroviral therapy (ART) in three clinics in Kenya. Patients were randomised (1:1) by simple randomisation with a random number generating program to a mobile phone short message service (SMS) intervention or standard care. Patients in the intervention group received weekly SMS messages from a clinic nurse and were required to respond within 48 h. Randomisation, laboratory assays, and analyses were done by investigators masked to treatment allocation; however, study participants and clinic staff were not masked to treatment. Primary outcomes were self-reported ART adherence (>95% of prescribed doses in the past 30 days at both 6 and 12 month follow-up visits) and plasma HIV-1 viral RNA load suppression (<400 copies per mL) at 12 months. The primary analysis was by intention to treat. This trial is registered with ClinicalTrials.gov, NCT00830622. Between May, 2007, and October, 2008, we randomly assigned 538 participants to the SMS intervention (n=273) or to standard care (n=265). Adherence to ART was reported in 168 of 273 patients receiving the SMS intervention compared with 132 of 265 in the control group (relative risk [RR] for non-adherence 0·81, 95% CI 0·69—0·94; p=0·006). Suppressed viral loads were reported in 156 of 273 patients in the SMS group and 128 of 265 in the control group, (RR for virologic failure 0·84, 95% CI 0·71—0·99; p=0·04). The number needed to treat (NNT) to achieve greater than 95% adherence was nine (95% CI 5·0—29·5) and the NNT to achieve viral load suppression was 11 (5·8—227·3). Patients who received SMS support had significantly improved ART adherence and rates of viral suppression compared with the control individuals. Mobile phones might be effective tools to improve patient outcome in resource-limited settings.