SUPPLEMENTAL MATERIAL

Supplementary Table 1: Behavior change techniques used in the StAR SMS text-messaging intervention.

Behavior change technique cluster*		**Text message content†**	Type of message‡
Repetition and substitution			
	Habit formation	Taking your medicine at the same time every day can help you remember to take your pills regularly.	Weekly
	Behavior substitution	Please remember, if you can't make your MEDICINES TIME&DATE, send someone you trust to pick-up your pills. We need your clinic card and their identification document.	
	Behavioral rehearsal/practice	Planning ahead (counting out tomorrow's pills today) can help you remember to take your pills.	Weekly
	Generalization of a target behavior	Your good health is important. Please try to do more exercise. Activities that make you sweat or your heart beat faster are good for you.	Weekly
Natural consequences			
	Health consequences	Please tell us (DR&PHARMACY) if you think your high blood pills are making you feel unwell. Ask us about common side effects of your pills.	Weekly
	Salience of consequences	Please don't give yours meds to people who are not prescribed them. Giving other people pills can endanger their health. Ask them to please come to the clinic.	Weekly
	Anticipated regret	Did you know untreated high blood (when you don't take your pills) puts you at risk for heart disease? Please take your pills as directed.	Weekly
Goals and planning			
	Action planning	Ask someone you trust to help you remember to take your medicine as directed.	Weekly

	Problem solving	Please remember to come back to clinic if you run out of medicine before your next date. You can come even if it is not your date.	Weekly
	Commitment	Please remember your high blood is with you always. Work with [CLINIC NAME] to stay healthy. Keep your clinic dates & take your medicine as directed.	Weekly
	Goal setting (outcome)	Please remember your next MEDICINE PICK-UP DATE is on [DAY][DD/MM/YY] at [00:00].	48 hours prior to scheduled appointment
	Behavioral contract	Please remember your high blood can't be cured. To keep healthy Please keep on with your pills, come on your booked clinic dates, exercise & eat healthy food	Weekly
	Review of behavior goals	Thanks for picking up your meds. Keeping on your pills & attending on your correct dates helps us serve you better.	48 hours post scheduled appointment
Social support			
	Practical	Please be sure to tell the PHARMACY if you need to go away. We will give you a letter & extra pills so you won't run out.	Weekly
	General	Work with us to stay healthy. Learn about your condition & how to manage it. For more info ask us.	Weekly
	Emotional	You are an important member of your community. Please keep trying with a healthy lifestyle. Please try to do more exercise.	Weekly

* Michie et al (2008)

†All text messages were signed off by a named health care provider

‡ Participants received one message per week, either a reminder to attend an up-coming appointment (48-hours prior to scheduled appointment) or a message selected-at-random from the message library.

Participants selected the time of day at which the message was sent, at trial recruitment

Supplementary Table 2: Checklist for development of the SMS-text Adherence suppoRt (StAR) intervention

1.	**Brief name**	Control Group	Information-only SMS intervention	Interactive SMS intervention
2.	**Rationale or theory**	Mobile phones are contextual tools which could deliver an ecological momentary intervention [1]. We used SMS text-messages (text's) because of their widespread availability. We drew on an integrated theory of behaviour change,[2] to guide message development alongside evidence-based behaviour change techniques (BCT)[3]. Messages were made available in participants' preferred language. As the relative effect on clinical outcomes of an informational versus interactive system of SMS-text messages was unclear from the literature, we included two intervention arms, one with information only SMS-text's, and one that included an interactive component. Infrequent non-health related SMS-texts sent to all participants with the aim of: 1. Maintaining participant interest in the trial. 2. Making it less clear who was getting which intervention 3. Excluding receipt of "any SMS" as a factor in effecting health-related behaviour in comparison with usual care		
			Information-only SMS intervention 1. Timely, relevant, personalised information designed to address common challenges to adherence 2. Content focused on BCT of goals and planning, repetition and substitution, social support, natural consequences 3. Unidirectional SMS-text messages 4. Messages designed to be polite, direct, signed off by named provider	Interactive SMS intervention 1. Timely, relevant, personalised information designed to address common challenges to adherence 2. Content focused on BCT of goals and planning, repetition and substitution, social support, natural consequences 3. Bidirectional SMS-text messages 4. Messages designed to be polite, direct, signed off by named provider

3.	**Materials**	Additional health information leaflet in preferred language provided at baseline-trial visit		
4.	**Procedures** Delivery of text messages	1. Language and timing of messages selected by participant 2. Welcome SMS-text 3. "Happy birthday" SMS-text 4. Non-health related SMS-text message sent at 6-weekly intervals (randomly selected)	1. Language and timing of messages selected by participant 2. Welcome SMS-text 3. "Happy birthday" SMS-text 4. Non-health related SMS-text message sent at 6-weekly intervals (randomly selected) 5. Weekly SMS-text message, randomly selected from library (with rule that ensured messages were not repeated) 6. SMS-text message reminder to attend scheduled clinic appointment 48 hrs prior to date 7. SMS-text message to either thank participant for attending appointment or alert participants about a missed appointment 48 hrs post date	1. Language and timing of messages selected by participant 2. Welcome SMS-text 3. "Happy birthday" SMS-text 4. Non-health related SMS-text message sent at 6-weekly intervals (randomly selected) 5. Interactive-SMS to check timing and language of messages was acceptable (automated system to make change if required) 6. Weekly SMS-text message, randomly selected from library (with rule that ensured messages were not repeated) 7. Interactive-SMS to remind participant of up-coming appointment and offer to reschedule if date no-longer convenient (48 hrs prior to appointment date) 8. Interactive-SMS thanking participant for attending appointment or offer to reschedule a missed

				appointment 48 hrs post date) 9. Interactive-SMS to trouble shoot common problems at the health facility (long queues, lost folders)
5.	**Intervention provider**	Automated SMS-text delivery platform using open-source software badged from clinical facility based on local smart-phones linked to a secure server		
6.	**Modes of delivery**	Intervention delivered via 160 character SMS text-message sent to individual participant's own handset		
7.	**Location where intervention occurred**	Outside of health care facility, where ever participant and their phone were located (real world)		
8.	**Number of times intervention was delivered over what time period**	SMS-text message sent about once every 6 weeks for 12-months	SMS-text message sent weekly for 12-months	SMS-text message sent weekly for 12-months (with follow-up messages generated through user initiated dialogue)
9.	**What, why, when, how intervention was personalised or adapted**	1. Language and timing of messages selected by participant 2. Date of birth recorded for birthday message	1. Language and timing of messages selected by participant 2. Date of birth recorded for birthday message 3. Personalised timing of appointment reminders based on prospectively routinely collected computerised appointment data	1. Language and timing of messages selected by participant 2. Date of birth recorded for birthday message 3. Interactive-SMS to check timing and language of messages was acceptable (if not automated SMS-dialogue to change either language or timing) 4. Personalised timing of appointment reminders based on prospectively routinely collected computerised appointment data 5. Regular interactive-SMS to enable rescheduling of

				up-coming or missed appointments, and to troubleshoot common challenges at the health facility
10.	**Modifications during the trial**	Nil	Nil	Nil
11.	**Planned intervention delivery**	SMS-text messages were sent using an automated system independent of trial and clinical staff. Participants were told that not everyone would be receiving the exact same messages. Participants were also asked not to share the SMS text-messages with others. Intervention fidelity was checked by confirming receipt at least of an initial "Welcome" SMS text-message for all enrolled trial participants prior to randomisation. Message delivery reports were monitored throughout the trial to check the intervention was being delivered as planned. Messages not delivered (for example, network unavailable) were re-sent up to three times.		
12.	**Actual intervention delivery**	8,277 individual SMS-text messages over 12-month period (457 participants)	40,333 individual SMS-text messages over 12-month period (458 participants)	41,450 individual SMS-text messages over 12-month period (458 participants)

References

[1] K. E. Heron and J. M. Smyth, "Ecological momentary interventions: Incorporating mobile technology into psychosocial and health behaviour treatments," Br J Health Psychol, vol. 15, no. 1, pp. 1–39, Jan. 2011.

[2] H. de Vries, A. Mudde, I. Leijs, A. Charlton, E. Vartiainen, G. Buijs, M. P. Clemente, H. Storm, A. González Navarro, M. Nebot, T. Prins, and S. Kremers, "The European Smoking Prevention Framework Approach (EFSA): an example of integral prevention.," Health Educ.Res., vol. 18, no. 5, pp. 611–626, Oct. 2003.

[3] C. Abraham and S. Michie, "A taxonomy of behavior change techniques used in interventions.," Health Psychol., vol. 27, no. 3, pp. 379–387, May 2008.

Supplementary Table 3: Comparison of randomized and non-randomized patients

Variables	Randomised (n=1372)	Not Randomised (n=1186)
Age (years), mean (SD) [n=2534]	54.4 (11.5)	60.6 (12.9)
Sex:		
Male, n (%)	379 (27.6)	343 (28.9)
Ethnicity:		
Black, n (%)	790 (57.6)	378 (32.7)
Colored, n (%)	565 (41.2)	762 (65.9)
Other, n (%)	17 (1.2)	17 (1.5)
Weight (kg), mean (SD) [n=2491]	83.3 (19.1)	77.0 (18.6)
BMI, mean (SD) [n=2489]	32.7 (7.6)	30.5 (7.2)
Systolic BP (mmHg), mean (SD) [n=2486]	135.4 (17.6)	138.8 (21.4)

Supplementary table 4: Access to Cell-phone technology by randomized group

	Usual care n (%) n= 457	Information only n (%) n=457	Interactive n (%) n=458
Have their own cell-phone	435 (95.2)	432 (94.5)	432 (94.3)
Spouse/Partner	6 (1.3)	9 (2.0)	7 (1.5)
Other family member	16 (3.5)	15 (3.3)	19 (4.1)

Missing data Usual care 0; Information only 1, Interactive 0.

Supplementary Table 5: Sensitivity analysis of systolic blood pressure at 12 months

	Difference in mean change (95% CI)* IO vs. UC	**P-Value***	**Difference in mean change (95% CI)* IN vs. UC**	**P-Value***
Mixed effects model adjusting	-2.1 (-4.3 to 0.04)	0.054	-1.5 (-3.7 to 0.67)	0.18
ANCOVA	-2.2 (-4.3 to -0.01)	0.049	-1.6 (-3.8 to 0.60)	0.16

UC Usual Care; IO Information Only: IN Interactive.

*Adjusted for baseline systolic blood pressure, age, gender, number of years with hypertension, appointment attendance, body mass index

Numbers of participants providing data at each time-point: baseline UC n=457, IO n=457, IN n=458; six months UC n=213, IO=245, IN n=241; one year UC n=396, IO n=406, IN n=394

Supplementary Table 6: Cause of death in trial participants

	Control	Interactive	Information	Total
Unknown cause	1	1	1	3
CCF	0	2	0	2
CKD	0	0	1	1
COPD	0	1	0	1
Cancer	0	2	2	4
Ischemic heart disease	0	0	2	2
LRTI	0	0	1	1
Pulmonary TB	2	0	0	2
HIV-related	0	1	0	1
Total	*3*	*7*	*7*	*17*

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