

Appendix 1: Use of the model to design the Healthlines telehealth intervention for patients at raised cardiovascular risk or depression

MODEL ELEMENT	STRATEGIES INCLUDED IN INTERVENTION
Engagement	
Patient	Provide a 'Welcome Pack'. Emphasize that support with technology will be provided
	Healthlines advisors provide technical support e.g. with getting logged in to websites
	Promote the advantages to patients of using Healthlines, based on perceived advantages identified in qualitative research and other literature, and address perceived disadvantages
	Encourage sense of personal care through seeking to maximize continuity of care from named Healthlines advisor
	Regular positive reinforcement through monthly telephone calls from Healthlines advisor
	Encourage sense of partnership between patient, Healthlines and GP through frequent communication
Health professional	All communications seek to reinforce the message that the Healthlines service is supporting and delivered alongside primary care
	Regular communication with primary care
	Messages to primary care continually emphasize evidence based nature of interventions and guidance
Promoting self-management	
Behaviour change techniques	Healthlines cardiovascular intervention adapted from the Duke self-management package, which uses scripts for advisors based on psychological principles of behaviour change. Depression intervention encounters support use of the Living Life to the Full cognitive behaviour course, with additional modules relating to alcohol, exercise, relapse prevention. In both cases, intervention is tailored to patient's needs and goals.
Self-monitoring	CVD risk: Provide patients with free BP monitors and web-site to log readings Depression: Patients using online Living Life to the Full regularly monitor their progress with self-assessment modules including score on PHQ9 questionnaire.
Feedback	CVD risk: BP website gives immediate feedback and graphical display about whether BP is above or below target and next actions
Provide patient	Healthlines advisor works with patients to identify goals and then emails

information	them links to further resources available on the internet which have been quality assessed (e.g. diet advice, risk calculators, videos, patient forums)
Promote self-efficacy	Using motivational interviewing approach, identify motivating factors, encourage action plans and goal setting
Motivational interviewing	All Healthlines advisors undertake motivational interviewing training
Shared decision making	Make targets (e.g. for BP) explicit to patients, provide information about advantages and disadvantages of treatments, encourage patients to discuss options with GP, share letters to GPs with patients
Personal support from health professionals	As far as possible, provide continuity of care from one named Healthlines advisor rather than an anonymous 'call-centre' approach
Peer support	Patients in depression intervention are offered option to access Big White Wall, an online forum for patients with depression
Treatment optimization	
Risk stratification	CVD: Calculate cardiovascular risk using QRISK. Level of intervention guided by level of risk factor with escalation to GP for patients at high risk Depression: Assessment using PHQ9 and advice about treatment in relation to severity. PHQ9 also used to assess suicidal risk with use of a protocol for escalation and more detailed risk assessment for patients at significant risk
Treatment intensification	CVD: Monthly review of BP using online log of BP readings, protocol driven advice to GP to intensify treatment each month if targets not met Depression: Regular monitoring of PHQ9 score and review and intensification of treatment if no improvement
Evidence-based guidelines and protocols	Healthlines advisors' scripts all based on careful review of national guidelines. Encourage compliance with guidelines by sending GPs a simple flow chart summary with each treatment recommendation
Regular review	Healthlines advisors telephone patients monthly, based on scripts which raise new topics each month and review progress against goals
Promote medication adherence	Monthly review of medication adherence, scripts use evidence based strategies to improve adherence, advice to GPs by email if patients are non-adherent
Share recommendations with patients	Patients are given online access to guidelines and treatment recommendations sent to GPs
Care co-ordination	
Multi-component	Intervention combines interactive patient web portal, self-monitoring,

interventions	and telephone support from health advisor
Shared records	At onset, Healthlines receives information about patients from primary care records. All treatment recommendations shared with both primary care provider and patient. CVD: A summary of recent BP records from patient web-portal is sent to GP when treatment change is recommended.
Communication between the telehealth provider and primary care	Ideally, Healthlines advisors would visit general practices to build relationships, facilitate engagement with telehealth, resolve problems, but this was not achieved in this trial.
Regular monitoring of system performance	Reporting module which allows monitoring of management program (e.g. of number of patients who have been telephoned, number actively self-monitoring BP, number participating in on line cognitive behaviour therapy)
Support rather than duplicate primary care	All communications with primary care providers and patients reiterate the message that Healthlines is designed to support GPs in their role of managing patients. All treatment recommendations are made to GPs and copied to patients.
Partnership	
	All communications are shared. Communication is two way: GPs can contact Healthlines e.g. to change a patient's BP target
	GPs and service managers involved in designing the Healthlines intervention
Context	
	The nature and intensity of the intervention is tailored to the nature and severity of the patient's health condition.
	Patients are only invited to participate if they are above a specified severity threshold
	Recognizing that in the NHS patients have an enduring relationship with their GP, which reinforces the importance of supporting rather than duplicating or undermining that role
	Not all patients have access to reliable internet connections, so this intervention is only likely to be relevant to a proportion of those in need. Provide technical support to help patients, for example, log in to web portal. In evaluation, it is important to describe the characteristics of patients who take part.