### LONG RESEARCH ARTICLE







# Clinician perception of a novel cardiovascular lifestyle prescription form in the primary and secondary care setting in Wales, UK

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### **Abstract**

**Issues addressed:** To establish the views of clinicians on the feasibility and effectiveness of using a novel lifestyle prescription form (LRx) which requires co-signing by clinician and patient and is uniquely based on the design of the standard drug prescription form, in the primary and secondary health care settings.

Methods: Thirty-six participants were issued with a "prescription" pad, of 20 LRx scripts, for 1 month and requested to issue an LRx prescription to patients they deemed suitable during their consultation, recording their reason for use of the LRx. Each clinician was then asked to complete a comprehensive feedback questionnaire. Results: Feedback of the LRx was overwhelmingly positive. The script was viewed as a more effective way to convey and support cardiovascular lifestyle advice, than usual care. Forty per cent (196 of 480) of the LRx scripts that were provided to primary and secondary care clinicians during the study period were issued. In most consultations, the LRx script was issued to reaffirm dietary advice. Nurses and health care assistants were more likely than doctors to use the LRx in response to a request for lifestyle advice from a patient.

**Conclusions:** The LRx may be a useful addition to the clinician's communication toolkit to stimulate lifestyle behaviour changes in their patients. The main barrier to use in the study was lack of consultation time.

**So what?** Issuing the LRx is a method of solidifying lifestyle advice that clinicians could utilise, providing them with another tool in their behaviour change arsenal, particularly with familiarity with the tool.

### KEYWORDS

cardiovascular diseases, health behaviour, health education, health literacy, lifestyle

### 1 | INTRODUCTION

Despite advances in medicine and significant research funding, cardiovascular disease (CVD) remains the leading cause of mortality and the leading non-communicable disease in the United Kingdom (UK).<sup>1-3</sup> It is well-established that behaviours including cigarette smoking, regular alcohol

consumption, an unhealthy diet and lack of physical activity are significant contributors to cardiovascular disease; these four behaviours are a known contributory cause of up to 90% of all cardiovascular disease. Crucially, these behaviours, if changed, lead to markedly improved health outcomes and consequently save the UK National Health Service, time and money while reducing the burden placed on health care providers.

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Health care practitioners (HPs) often report lack of time as a barrier to giving lifestyle advice as well as feeling undertrained to deal with health harming behaviours<sup>6</sup> and a feeling of hopelessness in being able to change patient behaviour to promote their health.<sup>7</sup> Furthermore, many clinicians feel they require more training in having behaviour change conversations with patients.<sup>8</sup>

Therefore, a lifestyle prescription (LRx) which is "user-friendly" and provides the clinician with prompts, as well as providing the patient with advice and signposting to further assistance, may be a useful resource in a time-scarce context such as primary care (PC) consultations and on hospital ward rounds.

Behaviour change is a sustained process, which, if it is to be successfully initiated, necessitates a positive relationship between the provider (counsellor or practitioner) and the client (patient), built on trust and effective communication. Patients trust and appreciate the significance of prescription forms issued to them by their consulting clinician. They are seen not merely as simple instructions but as orders from the prescriber. An LRx issued by a prescribing clinician would indicate to the patient that the prescriber believes that behavioural changes are as important as medical or pharmacological interventions for improving a patient's health.

The LRx is a novel tool derived from the concept of a regular prescription form, combined with the guidance and signposting to services often found in leaflets in general practice. This unique combination is designed to provide clinicians with an alternative approach to instigate or confirm a behaviour change conversation with their patients and to convey important health information related to cardiovascular health. A resource such as this has never before been developed or used in the National Health Service in the UK.

The present study was conducted in the Cwm Taf University Health Board in Wales, UK, an area with both high rates of CVD and health harming behaviours.<sup>13</sup> The aim of the study was to canvass the opinions of PC and secondary care (SC) practitioners, who regularly engage with patients demonstrating health harming behaviours, on the utility of an advice directing prescription form, the LRx, during patient consultations.

### 2 | METHODS

### 2.1 | Study design

A small pilot study (n = 12 HP) which briefly surveyed local practitioners via word of mouth determined interest in the concept of the LRx for this study to be established. General practices, health centres and clinical staff at the Royal Glamorgan Hospital, located in the Cwm Taf University Health Board, South Wales Valleys were speculatively contacted and invited to join the study either by letter, email or by word of mouth. The Cwm Taf Health Board has 38 GP practices or health care centres and two major hospitals. The study Chief Investigator gave a presentation introducing the study at Doctors' Friday Teaching to encourage participation. Participants were inducted into the study, given information on its purpose and the intervention they were requested to undertake. Participants

were asked to issue as many scripts as they felt appropriate during consultations over a 1-month period, from a pad of 20 LRx. Immediately following conclusion of the study, the participants were asked to complete an online questionnaire. The study received a favourable review by the Cwm Taf University Health Board Research Risk Review Committee and was approved by the Faculty Research Ethics Committee of the University of South Wales. Written and verbal informed consent was obtained from each participant in the study. Thirty-six health care professionals were successfully recruited into the study after 4 months of study promotion and recruitment engagement (Figure 1). Each clinician was provided with a 20-sheet prescription pad, LRx (Figure 2A,B), briefed to provide advice consistent with the documented text provided on the forms, told how to provide this advice and to ensure that patients co-signed the prescription forms. Participants were provided with a log sheet to record their reasons for issuing the LRx and basic demographic details of patients receiving the script. The clinicians were then asked to complete an online survey which included an opportunity to provide written feedback.

### 2.2 | Data analysis

Questionnaire data were collected using Bristol Online Surveys (onlinesurveys.ac.uk). Statistical software (SPSS statistics, V24, IBM) was used to calculate statistical significance (P < 0.05). Comparison between primary and secondary care were made using the Mann-Whitney test. Questionnaire responses were compared using a chisquared test for association.

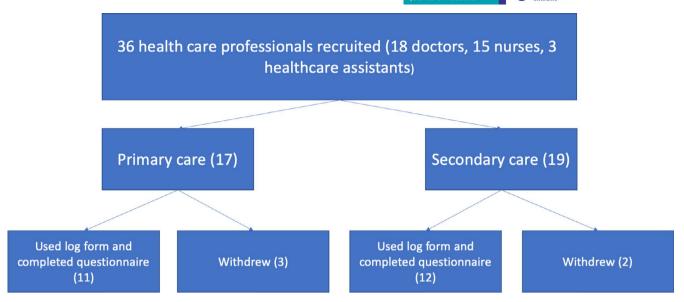
### 3 | RESULTS

### 3.1 | Lifestyle prescription form use

Of the thirty-six recruited participants, 24 participants used the log form and issued at least one LRx script over the month of the study. Of these 24 participants, one PC practitioner did not complete the questionnaire, therefore their data were removed. The lifestyle change advice prescribed is shown in Table 2.

In PC, 11 participants distributed 108 LRx forms from a possible 240 (45%) to patients (mean age 53 years, range 35–66 years, Male:Female 57:43%). Twenty-two per cent of the LRx were prescribed to patients with established heart disease. The mean percentage for prescribing each lifestyle change were as follows: dietary (62%), physical activity advice (61%), smoking advice (48%), alcohol advice (25%), The mean percentage for each reason for issuing an LRx was as follows: 51% as an adjunct to prescribing medication, 46% LRx issued in response to a request for advice from the patient, 14% as an alternative to prescribing medication, 3% alongside a referral to SC.

In SC, 12 participants distributed 88 LRx forms from a possible 240 (37%) to patients (mean age 60 years, range 48–75 years, Male:Female 68:32%). 55% of the LRx were prescribed to patients with established heart disease. More LRx were prescribed in clinic/



**FIGURE 1** Illustrates the participant recruitment into the study. Seventeen participants were initially recruited into the primary care arm and 19 participants were recruited into the secondary care arm

outpatient settings than in the ward setting; mean 80% clinic, mean 20% ward. The mean percentage for prescribing each lifestyle change were as follows; diet (69%), exercise (64%), alcohol advice (38%), smoking advice (36%). The mean percentage for each reason for issuing an LRx was as follows: 34% LRx issued in response to a request for advice from the patient, 34% as an adjunct to prescribing medication, 27% alongside a referral, 20% as an alternative to prescribing medication.

Comparisons were made between doctors (n = 8) and nurses plus health care assistants (n = 15) from data collected in each participant's log form. There was no significant difference between the prescribing habits of these two groups across all examined variables except the variable "prescribed the LRx in response to request from advice from the patient" (P = 0.006) as nurses and health care assistants were significantly more likely to choose this option on the LRx log form. There was no significant difference, between PC and SC, of the number of LRx used or of the mean age prescribed to. There was also no significant difference in the number prescribed to males or females between PC and SC.

### 3.2 | Questionnaire

Completed questionnaires were received from 13 PC and 17 SC participants. Data were analysed only if participants had used the LRx log form and had issued at least one LRx. Therefore, 11 PC and 12 SC participants' questionnaire data were analysed (Table 1). Comparisons of questionnaire output were made between nurses/health care assistants (n = 15) and doctors (n = 8) and also between PC (n = 11) and SC (n = 12). No significant differences were found between these groups to any of the survey questions following a chi-squared test. The responses given to the questions in the survey were overwhelmingly positive about the use of the LRx and its suitability in the health care setting (Table 1).

### 3.3 | Qualitative feedback

Participants were invited to provide free-text written feedback on the LRx via comments at the end of the online survey. Comments were generally positive about the LRx, although many indicated time as the factor most limiting their use of the LRx. One clinician commented that the concept of prescriptive advice was not taken well by some patients and that they found patient selection to be more important. Overall, the feedback indicated the LRx were well received and easy to use. Clinicians commented that their patients welcomed the extra written advice and that including it in a prescriptive format enhanced its importance. Clinicians thought that the LRx was well suited to a cardiology setting and especially for cardiac rehabilitation. The LRx was found easy-to-use by all of the varied HP that utilised it.

### 4 | DISCUSSION

This is the first study, to the authors' knowledge, evaluating a novel "lifestyle change prescription" which is fundamentally based on the design of a standard prescription form (WP10 form in Wales, UK), supported by co-signing by clinician and patient. The form is designed to confirm verbal advice given to patients and prompt clinicians to engage patients in behaviour change. The study attempted to determine health care professionals' perceptions of such a resource for use in different clinical settings.

This study found that clinicians are generally in favour of an LRx as an adjunct to their verbal advice when engaging patients in a behaviour change conversation. Participants offered predominantly positive feedback on the concept of the LRx but cited lack of time as the main issue for lack of using the LRx in their consultations (Table 2 and Appendix 1). This finding is in accordance with Elwell et al who found lack of time to be a barrier to clinicians undertaking behaviour change

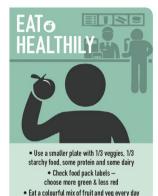


(A)











(B)



# **HOW TO DO IT:**

- With expert support & things like nicotine patches (or medicines) you're 4x more likely to quit than just trying to do it on your own.
- Get FREE expert help from your local pharmacist or contact Help Me Quit Tel: 0800 085 2219 or www.helpmequit.wales
- Set small steps to quitting and reward yourself every time you beat the urge to smoke.

For local advice & info call: Drug & Alcohol Single Point of Access on 0300 333 0000 🛛 🥞

→ Tell friends and family that you're stopping smoking and think about the good bits of quitting – better health & money saved!



SMOKING

- → Low or no alcohol boosts your chances of a longer healthier life...and not feeling rubbish the next day.
- → Less alcohol = lower blood pressure so you're less likely to get heart disease, liver disease & some cancers.
- → Less alcohol = a lot less calories, a chance to lose weight & have more energy.
- → Less alcohol = less likely to be depressed, and more likely to have better sleep and better relationships.
- → Don't drink over the limits 4 units max for men and 3 units max for women on any day & have 2 days dry (no alcohol) every week.
- → If you drink before you start set a limit
- v much you'll drink & stick to it. → Swap to a lower alcohol percentage (%) or
- 'go small' try smaller bottled beers not pints & regular not large glasses of wine
- → For info, advice and easy access to services for those affected by substance misuse call - DASPA on 0300 333



- Eating healthily helps keep your hody strong making sure you cal body strong making sure you can fight off germs and diseases.
- Too much of most things can be bad for your body:
- Too much salt can put your blood pressure up, so you're more likely to have heart disease or a stroke.
- Too much saturated fat pushes up your weight, can push up your blood cholesterol and increases the risk of heart attack, stroke and diabetes
- causing tooth decay.
- Too much sugar will be turned into fat, increasing your diabetes and heart disease risks aswell as
- too much of any one food.
  Check food pack labels LESS calories, salt, fats, sugars & MORE fibre. Eat a colourful mix of fruit and veg every day - add some to every meal.

  Drink lots of water, and less alcohol
  and less full sugar pop.

→ Eat a mix of food types & not

- → Portion swap use a smaller plate and aim for 1/3 veggies, 1/3 starchy food -wholemeal/whole grain are best.
  - → Cut back on fat boil, grill or icrowave, don't fry.
- → Eat regular meals, including breakfast. → Eat less red meat but more fish.



- Being more active every day keeps → Sitting down for a long time means you fit so you can make the most of things and cope better with whatever life throws at you.
- Not being active enough means you're more likely to become depressed and more likely to get overweight, and even heart disease, diabetes & some cancers.
- your body works slower so it's less good at getting energy up when you need it most and less good at breaking down fat.
- → Being more active boosts your body's defences and lowers your stress, lifting your mood if you're feeling down.

- → Do things like a ½ hour walk, 5 days a week - to get your heart rate up.
- See how many times in a day you can use your feet! - take the stairs, get off the bus one stop before yours, park your car up and walk a bit further
- → Use your seat as a treat don't sit down for too long, keep moving.
- → Being more active doesn't have to feel like a workout - a regular splash around with family or friends or swimming lengths at your local pool, gardening or even walking to the shops (& carrying your food back) all help.

Over 50? – try www.addtoyourlife.wales.nhs.uk - a free NHS Wales health check to help you live longer, feel better, and stay healthy and active into the future.

FIGURE 2 A, The front page of the LRx form (left panel), providing four advice options and the opportunity for the signature of both the practitioner and patient. B, The obverse page of the LRx form. This page provides direction to the advice sites





**TABLE 1** A summary of the questionnaire responses from the primary and secondary care settings

Question or statement	Primary care	Secondary care
Responses	Response 1, n, %	Response 1, n, %
	Response 2, n, %	Response 2, n, %
(1) Prior to taking part in the study how often did you give lifestyle advice?  Response 1: always/often/sometimes, Response 2: rarely/never	11, 100% 0, 0%	11, 92% 1, 8%
(2) I found the LRx a useful addition to verbal advice Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	11, 100% 0, 0%	12, 100% 0, 0%
(3) Prior to taking part I was confident giving lifestyle advice Response 1: strongly agree/agree/ neutral, Response 2: strongly disagree/disagree	11, 100% 0, 0%	12, 100% 0, 0%
(4) The LRx is well designed  Response 1: strongly agree/agree/neutral, Response 2: strongly disagree/disagree	11, 100% 0, 0%	12, 100% 0, 0%
(5) found the LRx fit in well with other patient documents  Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	11, 100% 0, 0%	11, 92% 1, 8%
(6) I would be more likely to use an electronic version Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	8, 72% 3, 28%	5, 42% 7, 58%
(7) I used the LRx as a stand-alone source of advice Response 1: yes Response 2: no	7, 64% 4, 36%	5, 42% 7, 58%
(8) I used the LRx alongside a standard prescription form Response 1: yes Response 2: no	6, 66% 3, 33%	6, 50% 6, 50%
(9) Most of the time I had adequate time to deliver the LRx alongside giving verbal advice Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	10, 91% 1, 9%	11, 92% 1, 8%
(10) Most of the time the LRx supported the patient interaction well Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	10,100% 0, 0%	12, 100% 0, 0%
(11) Most of the time I found the content suitable for the patients I saw Response 1: strongly agree/agree/neutral Response 2: strongly disagree/ disagree	11, 100% 0, 0%	11, 92% 1, 8%
(12) The use of the LRx improved my confidence giving lifestyle advice Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	11, 100% 0, 0%	10, 83% 2, 17%
(13) Patients were willing to accept the unfamiliar prescription form  Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	11, 100% 0, 0%	12, 100% 0, 0%
(14) Patients reacted negatively to the LRx Response 1: strongly agree/agree/neutral Response 2: strongly disagree/ disagree	0, 0% 11, 100%	0, 0% 12, 100%
(15) I feel that patients took lifestyle advice more seriously by signing the LRx Response 1: strongly agree/disagree	10, 91% 1, 9%	10, 83% 2, 17%
(16) I would recommend the LRx to colleagues Response 1: strongly agree/agree/neutral Response 2: strongly disagree/disagree	11, 100%	14, 100%

interventions and providing lifestyle advice.<sup>7</sup> Doctors were more likely to cite lack of time than nurses in using the LRx. This is in line with other studies which illustrate lack of time as a main barrier to clinicians engaging their patients in lifestyle change. 14,15

The questionnaire data retrieved from the study found largely positive responses to each question. The questions aimed to assess the feasibility of using the LRx and whether clinicians deemed the LRx to be a tool that they would use. Responses from PC and SC were overwhelmingly similar except from the response to the question, "I would be more likely to use an electronic version of the LRx." PC participants were more likely to choose this option than SC participants which was to be expected due to the current format of PC consultations and increasing automation of prescribing.<sup>16</sup> Whereas hospitals in Wales are still very much reliant on older technology, including paper-based systems for prescribing and documenting patients notes.

There were a greater number of LRx distributed in the PC setting where more participants were nurses. This may indicate that the LRx could be more suitable in PC and also for utilisation by nurses who were less likely to report lack of time as a barrier to using the LRx. The LRx as a mechanism to initiate a behaviour change conversation may also be better suited to the patients who present to PC practitioners, a large proportion of whom have CVD risk factors attributable to health harming behaviours but are less likely to have advanced disease.<sup>17</sup> Also, nurses and health care assistants were significantly more likely to prescribe an LRx in response to a request for advice from a patient regarding lifestyle changes, than doctors in this study. This may indicate that this group is more comfortable in having lifestyle change conversations via the use of standard informative materials which is corroborated by Taylor et al. 18

The LRx, based on a standard prescription which patients are familiar with from their visits to general practitioners, was expected



**TABLE 2** A comparison between care settings and reasons for issue of LRx

Reasons for issuing Rx	Primary care (mean % issued)	Secondary care (mean % issued)	Significance <sup>a</sup>
Responding to request for advice	46	34	0.247
Alternative to prescribing medication	14	20	0.5
As an adjunct to prescribing medication	51	34	0.348
Alongside a referral	3	27	0.265
Smoking	48	36	0.369
Exercise	61	64	0.708
Alcohol	25	38	0.293
Diet	62	69	0.595

Mean % issued refers to the percentage mean across all participants.  $^{\rm a}$ Comparison between groups with Mann-Whitney U test.

to be most suited to the PC setting and used favourably by general practitioners. However, this study found that the LRx may be suited to even broader application via use by nurses and health care assistants in both PC and SC.

The LRx was used mostly as an adjunct to prescribing medication, meaning it was prescribed alongside another type of prescription including pharmacological. This adjunct prescription was seen most in PC where studies have indicated up to 67% of patients expect to receive a prescription when visiting their GP in the UK.<sup>11</sup>

A related prescriptive concept, the New Zealand Green Prescription (GRx), developed and administered in New Zealand general practice for the purpose of exercise referral has been very successful.<sup>19</sup> However, the LRx differs as it does not itself provide a referral capability but instead has been designed to be used as a behaviour change "brief" intervention.

Therefore, the LRx differs in its mechanism of action in so far as the GRx leads to service providers contacting the patient and initiating plans of behaviour change action whereas the LRx aims to engage patient autonomy and self-efficacy.<sup>10</sup>

Green prescriptions (GRx) were developed for use in PC settings to increase patient's physical activity while the LRx is designed to be used in myriad health care settings and by almost any HP. The GRx has been found to be successful, even in the long term, at improving adherence rates to a physical activity behaviour change. <sup>20</sup> The success is attributed to the prescription format of the behaviour change advice and the use of goal setting and written/verbal instructions. The LRx could develop towards the model of the GRx by creating links between the LRx distribution and service providers such as "Help Me Quit" (NHS stop smoking support services) rather than the patient having to initiate contact with the providers. <sup>21</sup>

Management of cardiovascular risk includes adoption of healthy lifestyles. However, uptake and completion rates for lifestyle programmes are low and many barriers to lifestyle behaviour change have been reported in the literature. The LRx proposes a way for practitioners to engage their patients in a conversation around behaviour change, cementing the verbal advice that is often given, and presenting smaller steps of change that patients can undertake without support, as well as signposting to further support options, in a brief intervention format.

Clinicians who used the LRx in this study did not receive formal training on conducting brief interventions or in motivational interviewing. Nevertheless, Butler et al<sup>25</sup> found no difference in reported beneficial behaviour changes at 3 months between patients of health care practitioners who were trained to give lifestyle advice and those who were not. This may be seen as a positive mark for the use of the LRx in a time scare health care setting and for potential use by health care assistants who may not receive formal patient communication training.

The LRx is a form of health promotion.<sup>23</sup> Used in the SC setting, it may help to improve the prognosis of individuals who present with risk factors for cardiovascular disease or other co-morbidities. Individuals who present to SC outpatient clinics are those which already have a risk factor or a diagnosis of morbidity often due to health harming behaviours.<sup>24</sup>

For the patient population to be willing to make behavioural lifestyle changes, it is first necessary for practitioners to have "bought in" to the idea of practicing behaviour change interventions and to see it as their responsibility to initiate behaviour change to reduce health harming behaviours in their patients. This study has successfully determined that many health care practitioners see the value in "prescribing" lifestyle advice and are happy to issue it to patients with health harming behaviours.

### 4.1 | Limitations

Recruitment of health care professionals was the most challenging aspect to this study for several reasons, including clinician aversion to participating in the trial due to the extra work involved and the geographical area of the study which is large and not well-connected. Due to the small sample size, the results from this study may not be appropriately generalised to other areas or other demographics of the UK. Participants in the study found that they did not have enough time to use the LRx and sometimes struggled to fit it into a consultation, this may be due to the novel nature of the prescription.

## 4.2 | Conclusion

The findings from this study indicate that clinicians may find an LRx useful in aiding their usual verbal advice to patients with health harming behaviours. The LRx provides the practitioner the capability to give reasonable and up-to-date advice regarding health harming behaviours as well as signposting the patient to useful services that



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can continue to engage them in changing their behaviour. From the feedback obtained in this study, the LRx may be well positioned for use by nurses who often have more time to engage patients in lifestyle changes and are often more experienced in this type of conversation. The LRx was found favourable for use in the PC setting and also the SC setting and therefore it was found that the LRx may have a greater suitability of use than was originally postulated.

### 4.3 | Recommendations

The LRx concept warrants further investigation. It should be determined whether the LRx increases the likelihood of a behaviour change conversation taking place between the clinician and patient. The LRx should be trialled with randomised patient groups to determine whether patients act on the advice issued to them via the medium of this novel prescription, compared to "usual care."

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### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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NHS Wales, the service helps you free yourself from smoking and nicotine dependence [Internet]. [cited 2018 Jul 13]. Available from: http://www.helpmequit.wales/.

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### **APPENDIX 1**

### QUALITATIVE FEEDBACK FROM CLINICIANS

A SC consultant cardiologist explained his experience with the form, "At first I was worried that the patients would feel patronized by the lifexmlstyle prescription. They actually welcomed it and I think that

the information and links on the reverse of the script are excellent and an aid to motivation."

A SC respiratory consultant described how she found using the LRx; "I think it's a good idea. I didn't give many out during the study period for a mixture of reasons — many patients needed investigations or medication prescribing, and I felt going through this too would be too much. A larger proportion of patients than I expected had severe pathology which lifestyle changes wouldn't help with. I would be happy to have them in my clinic room and use them when needed."

A SC diabetologist registrar indicated her wish for follow up after the distribution of an LRx; "One patient was not willing to have a lifestyle prescription — probably this attitude reflects his general attitude towards medical advice. It will be great if there is a commitment from both sides, doctors and patients, for follow up shortly after the prescription is given."

Two heart failure nurses noted the lack of time to utilise the LRx as they would have wished; "A useful resource, I would have liked more time to utilise them..." and "...well laid out and clear, wish I had more time to trial this properly." (Heart failure nurses, SC).

Regarding the advice-giving component of the LRx, "...I think this is a good way to back up advice given to specific patients. However, on reflection our patient group were not ideal for this study..." (Acute Care Physician).

Regarding the LRx suitability for cardiac rehabilitation, "I can see they would have a useful place in cardiac rehab, as it mirrors the advice we discuss with the majority of our patients." (Cardiac rehabilitation nurse, SC).