Supplementary File 1: Links Worker Programme Theory of Change

Level of Inter-vention	Resources	Activities	Short term outcomes	Medium term outcomes	Long term outcomes
Patient	**Practice Development Fund (much of it spent on more Time and Staff)** **Community Links Practitioner** **Programme clinical and management support**	1) Non-clinicians, 2) clinicians and 3) community links practitioners and working one-to-one with patients 4) Patient participation in practice organised/related activities	More able to acquire, access, and use available skills, information and support when needed; navigate health and other systems	Self-management of health conditions, and navigating and averting crisis and adapting to challenges Improved relationships with professionals and a sense of being seen and valued as a 'whole person'	More people supported to live well Addressing health Inequality
Practice		1) Improving primary care team wellbeing; 2) shared learning and awareness; 3) intelligence; 4) signposting; and 5) problem solving	Improved team wellbeing Adequate protected time and resources for shared learning; provision of appropriate, timely information; and improved understanding of social/personal context of illness	Improved skills in identifying and supporting those experiencing barriers to accessing resources, and enabling more effective patient self-management Sufficient time to listen and advise people, and service delivery that actively reflects the lived experience of patients and practitioners	
Commu-nity		Cultivating relationships with local community organisations by 1) primary care teams and 2) CLPs; 3) meetings and discussions to develop referral pathways and multi-agency resolution of problems; and 4) training and shared learning to consolidate new and existing community linkages 5) Patient and community involvement with practice activities, and 6) community capacity development for local organisations	Stronger practice-community relationship Established cross-sectoral referral pathways Joint resolution of shared problems Improved practice knowledge and intelligence about local community organisations and services provided Improved capacity of local community organisations to support people	Impact on primary care team, NHS services, local authority services, and community resources to support people to live well Creation and sustaining of a more community-oriented practice identity Establishment of practice in the community as 'citizens' that 'give back' to the community; practice as community hub	

Source: Mercer *et al* (2017) p. 18.

Supplementary File 2: Qualitative data showing differences in implementation of the Links Worker Social Prescribing Programme (LWP) illustrating the difference in partially integrated practices (PIPs) and fully integrated practices (FIPs), based on Normalisation Process Theory (NPT) constructs

Type	**Practice**	**Examples of LWP implementation process understood in terms of NPT Constructs**			
		Coherence Do people understand LWP and see it as different from other/previous ways of working?	**Cognitive Participation** Are people willing and able to engage with one another to carry out the LWP?	**Collective Action** What do people do to carry out the LWP and how?	**Reflexive Monitoring** Do people know if LWP is effective and can they modify it?
Partially Integrated Practice (PIP)	Crimson	CLP thought that GPs get LWP more than administrative staff: *"so I think the GPs have probably bought into it… but I'm no' so sure, like the practice manager's maybe just thinking they, I guess their targets and things like that."* (Crimson CLP, end-of-implementation interview)	GP thought that it has been challenging for some staff to work with CLP: *"I think that's fair to say, and I think [practice manager] would concede that, …. he doesn't let go very well and it's quite hard for him to have someone [CLP] come in… who's got some managerial responsibility because he's supposed to be doing his practice development but not being [part of the practice]."* (Crimson GP, in-depth Interview)	CLP has found implementing LWP activities challenging: *"I guess I'm disappointed with the… practice… they've taken on board a lot of things, you know, been up for change [but]… there seems tae be a lot of red tape that, or perceived red tape or whatever, and changes don't happen, they just stays the same."* (Crimson CLP, end-of-implementation interview)	GP thinks LWP has had an impact on practice as a whole: *"I think we probably have moved a bit from the medical model like the doc – the patient makes an appointment, sees the doctor, the doctor does a medical intervention. Next. So more of a shared approach…"* (Crimson GP, end-of-implementation interview)
	Cobalt	CLP did not feel that staff shared with her, the same understanding of what the LWP is supposed to be about:	CLP has found it challenging to suggest some LWP activities to staff:	CLP has found it challenging to do community networking activities	PM thinks LWP has had a positive impact on receptionist staff

		"…all of the GPs and clinical staff have made referrals to me so there is an understanding of the personal and social context of illness however there is still a reliance, for some GPs on me as a links worker and not on a links approach" (Cobalt CLP, Email survey 2)	*"But how you introduce it, and it being, and also not putting people's backs up. So if you're saying to reception staff, "Well, actually, you know, I think you could be doing with some, you know, managing difficult people training." They're like that, "What do you mean? I've worked here for twenty-five years… "How dare you say that?"""* (Cobalt CLP, in-depth interview)	*"So there is part of that, so it's more, a lot of it's reactive, you're finding resources based on a discussion with somebody than actually kind of going out. But I'm still able to do that but what, when you're taking it to the practice, what they're saying is, "You just tell us about these places." You know and, "We don't need to make the referrals."…"* (Cobalt CLP, in-depth interview)	*"Yeah I think that they [receptionists] are more confident in like signposting people to places and the fact that they've got this ALISS [information system about local resources] to go [to use]"* Cobalt PM, in-depth interview)
	Olive	GP thought that new resources in other forms than the LWP would have been better: *"So, I'm a huge fan of the Links concept and I think it's got enormous benefit. [but] What would, I think, change – would have the biggest impact in the way I work at the moment and improve the morale of my team, would be a new health centre…"* (Olive GP, in-depth interview)	PM did not think that LWP was part of her work: *"I've tried to deliberately distance myself from it a wee bit because there are things a Links Worker could do, or should be doing, that I don't need to be doing. So I've just been batting things back."* (Olive PM, end-of-implementation interview)	CLP has found implementing LWP activities challenging: *"They haven't allowed me to kind of perhaps action things in the way I would have liked. So I'm having to use other means, that's with the kind of informal chats or taking the opportunity when you get it, to share information, rather than the more formal structures of team meetings, and things like that that."* (Olive CLP, in-depth interview)	GP thinks LWP had an immediate positive impact on patients and some impact of the practice: *"But there certainly seems to be more short-term gains in terms of people accessing services. What will be the, sort of, you know, the outcome of that will obviously take longer to tell. I think it's probably changed some of the attitudes in the practice as well in terms of how we do things."* (Olive

					GP, end-of-implementation interview)
	Amber*	PM recognised that the LWP supported the practice to help its patients use community resources: *"the Links Worker Programme for me, I think it's for us, to enable the practice to have help and support to find the community services support for the patients that do require it. Enable us to get that work done that we can't do within day-to-day running of the practice."* (Amber PM, FGD)	CLP was able to share her knowledge with other practice staff: *"…and obviously since being in post, I've found out about lots of different community organisations and made referrals. And some are, some are better than others, so I now have that knowledge and I can share that with the practice staff and look at alternative referrals."* (Amber CLP, FGD)	Implementation of LWP was greatly constrained by the prolonged absence of their CLP: *"Our CLP is off due to bereavement. As yet we have idea of when her return will be. We have cover once a week for patient referrals however this has changed our momentum with certain capacities."* (Amber PM, Email survey 1)	GP feel he is better able to support his patients and thinks his patients perceive it too: *" before there was just… you would treat somebody [and] you'd medicalise everything… but I've got a better variety of things I can actually offer patients now, which is more rewarding. And I think patients do appreciate it."* (Amber GP, in-depth interview)
Fully Integrated Practice (FIP)	Magenta	GP understands that LWP is a "bottom-up" change to how people think about and work in the GP practice so that services can become better connected: *"And I think everyone's agreed that in the future we all need to be much more joined up with one another and much more well connected between social*	The CLP has engaged with receptionists about LWP and observed their change in working practice: *"…if someone has come into the practice looking for me or somebody has phoned and they are more open to saying… "what would you like me to tell [Magenta CLP]" and passing on that information. That's been a huge shift in*	The practice works closely with some local community organisations via LWP: *"but, I think LWP and myself are really integrated now where a GP could be sitting with their patient just now and they would message me and say – like "I've got someone here, can you give me the information on a particular service?" And then*	GP attributes the increased wellbeing of practice due to LWP: *"I'm a bit nervous to say it, but we're a happy practice, which we weren't two years ago."* (Magenta GP, in-depth interview)

		work, health, community groups, voluntary organisations... And to me this is about doing that from the bottom, so that we actually change how we think and work in the GP practice so that we become better connected." (Magenta GP, FGD)	*attitude where the previous sort of answer would have been "no [Magenta CLP]'s not in". You know so they're kind of encompassing my sort of inclusive way of working, and seeing past people's attitudes or how they present at the front desk or on the phone."* (Magenta CLP, end-of-implementation interview)	*I just send the message back, so they don't have to refer them to me, but they're still getting the same information that they need."* (Community Organisation worker, FGD)	
	Ochre	GP understands that LWP is also about getting the practice to work more closely with local services: *"but [Ochre CLP] will also have the connections with the other people, and those services, with any luck, hopefully, will be growing and developing, right? 'Cause surely that is the other offshoot from the Links project here…"* (Ochre GP, in-depth interview)	Staff have regular conversations about LWP to make sure things are working well: *"We all talk to one another and 0602 and myself have regular conversations, you know, to obviously make sure that, you know, everything's working well."* (Ochre PM, FGD)	CLP is able to perform community networking activities by getting involved in local groups herself: *"I sit on steering groups in the health centre. Sit on the arts and environmental steering group which is about the health centre and how it's linking in with regards to arts and, like, so, like the back garden… Then I sit on the community orientated primary care group which is across the whole health centre… "* (Ochre CLP, in-depth interview)	The community organisation that works with the practice has felt the impact of LWP: *"From my point of view it's been really useful to make the connection with the Links Worker at this practice. We've had several referrals from her and she's been really helpful – actually, essential, and vital at getting the young people actually into – physically into our service and into our building."* (Community Organisation worker, FGD)

	Cyan	GP and CLP agree that LWP is about accessing local community resources to support patients: *"GP: That's the other side that the Links Project to find - if you've got an illness, say it's diabetes - well I can do, as a doctor can do X, Y and Z but a lot of the things that will help might be in the community.* *CLP: Yeah, I think that's right, as [Cyan GP] says, it's kind of trying to build-up knowledge of what is actually out there… So I think obviously part of the programme is for myself to work one to one with people but for the whole practice to be more aware of what is actually kind of around that maybe would support patients and I guess kind of try and develop relationships with some of these resources."* (Cyan GP & CLP, FGD)	GP thinks that although it has taken some time, practice staff is starting to engage with LWP: *"Our initial aspiration was that they [receptionists] would be able to be Links Receptionists. This role has been slow in developing but, just when I was thinking it wouldn't stick it is now starting to take a hold and the staff are developing an understanding of the Links project (but it has taken time and the longer term nature of this sort of change is apparent)."* (Cyan GP, Email survey 1)	PM observed that even the receptionists are now keen to do community networking and practice development activities with the CLP: *"I think the receptionists as well, have taken it on board. They're looking forward to going out and learning some things with [Cyan CLP] and doing different activities…"* (Cyan PM, FGD)	GP doesn't think that the practice is able to effectively monitor the implementation of LWP: *"[the practice is still in the] paper stage with the Links project. [the practice has] not quite got the systems that capture the information."* (Cyan GP, in-depth interview)

*Amber is a borderline PIP because although it had better observed coherence and cognitive participation, it had less collective action of LWP as its CLP was away on long-term leave and the practice was not able to have a full-time replacement for a period of time.

Supplementary File 3: Factors influencing the implementation process in practices that partially integrated the Links worker programme (PIPs) and fully integrated it (FIPSs)

Type	**Practice**	**Leadership (shared or disconnected)**	**Team relationships (enabling or challenging)**	**Management of CLP support (managed or disruptive)**	**Influence of other innovations (managed or disruptive)**
Partially Integrated Practice (PIP)	Crimson	GP suggested that it was difficult for both his practice staff and the CLP to create a structure for LWP to work. Creating the structure for a new programme to work is the responsibility of practice and LWP leadership and it appeared to be challenged in Crimson Practice. *"the programme was designed that they were basically dropped in with no structure, and I totally understand why that was done but it wasn't easy. That was not easy, either for the Links worker or for us, to create a job from nothing."* (Crimson GP, in-depth interview)	CLP found it difficult to organise some activities due to interpersonal relationships in the practice *"And then organising [practice development activity], that's probably the hardest thing was probably the team dynamics within the practice, you know: "Who should I pair with who?"… somebody [said], "don't put her with her". That sort of thing. So that was, that was probably challenging in that aspect…"* (Crimson CLP, in-depth Interview)	No data on this but the CLP interviewed from this practice was the third one since LWP started. Additionally, at least two receptionists have left during this time (CLP, Email survey 1). This suggested that staffing has been an issue	No data

	Cobalt	PM and CLP have divergent views on the appropriate distinction that should be made between LWP and other interventions in the practice: *"And I think sometimes there's that mix between the [other project] it's trying to, it's separating what's the [other project] and what's the Links project?"* (Cobalt CLP, in-depth interview) *"I mean this is a personal view which I've expressed many times, but I think that the Links Programme and the [other project] together should be integral to every Deep End practice"* (Cobalt GP, end-of-implementation interview)	CLP has found it challenging to suggest some LWP activities to staff: *"But how you introduce it, and it being, and also not putting people's backs up. So if you're saying to reception staff, "Well, actually, you know, I think you could be doing with some, you know, managing difficult people training." They're like that, "What do you mean? I've worked here for twenty-five years… "How dare you say that?""* (Cobalt CLP, in-depth interview)	No data	CLP suggested other ongoing interventions in the practice were disruptive: *"So there's a wee bit of like when you mention things, he'll be like, "Oh that'll be great for the [other project]." And you're like that, "No… that's not the [other project]—this is the Links programme." So yeah, so he has clear ideas in some ways, yeah, he probably does have clear ideas what he wants."* (Cobalt CLP, in-depth interview)
	Olive	No data	PM suggested team relationships were challenging *"Practice staff seem to no longer be interested in the*	No data	CLP thinks the presence of another ongoing intervention is challenging:

			project, relationships seem to have broken down and apart from the clinical staff there is little or no interest in the project at the moment." (Olive PM, Email survey 2)		*"Being in a practice in the [health centre] whilst the [other project] is being run concurrent to the Links worker Programme is a huge challenge due to the overlap at times and also the politics that can arise."* (CLP, Email survey 1)
	Amber*	No data. Absence of CLP for a period suggests there was insufficient leadership in implementing LWP	No data	PM felt the absence of the CLP for a period hindered process in implementation *"Our CLP is off… As yet we have idea of when her return will be. We have cover once a week for patient referrals however this has changed our momentum with certain capacities."* (Amber PM, Email survey 1)	No data
Fully Integrated Practice (FIP)	Magenta	GP reflected that others in the practice were also taking on responsibilities *"I am continuing to provide leadership but have been pleased to see the wider team taking on roles and for activities such as the learning*	PM thought that LWP had benefitted staff wellbeing and by implication, team relationships: *"Yeah and I think we all work harder. I think because we've got the team well-being, we're not as stressed with more time to plan, carry out our duties to*	No data	No data

		times to be embedded now in practice activities." (Magenta GP, Email survey 2)	*the best of our ability, less mistakes can happen when we're more relaxed like that, so yeah I've found a big, it's been a big impact on the team and the practice"* (Magenta PM, end-of-implementation interview)		
	Ochre	GP described shared leadership in the practice: *"There's not enough of me. You want me to do other things, leadership, all the, you know, 2017 contract, you know, gonna split me into – whatever. Cannae do it. But now, I can give her to my Links Worker who's – because she's attached to me, and I see her, and she's part of the practice, and part of the culture of the practice, and I see her every day and – or most days, and have a wee chat with her"* (Ochre GP, end-of-implementation interview)	PM suggested team relationships have improved *"we've done a few team-building events. And I think the positivity from that has been great. I mean, there's definitely everybody, you know, you know, they feel, everybody feels appreciated."* (Ochre PM, end-of-implementation interview)	No data	No data

	Cyan	GP described "imaginative" leadership in the practice in a positive way: *"…I think the fact that the kind of, the sort of the leadership on this has been imaginative, you know, and so we've tried to be imaginative because if we can't do things differently, now, when we've got this little bit of extra capacity, when are we gonna do things differently?"* (Cyan GP, in-depth interview)	PM thought that LWP had benefitted staff wellbeing and by implication, team relationships: *"I don't know how the others felt about that but I wasn't expecting in, you know, for the staff to be taking part in things [LWP activities] and for them to be getting anything out of it. I really did think it was just, you know, for the patients. But… So I've been surprised and, you know, happy about that. That's… that definitely has made a difference."* (Cyan PM, end-of-implementation interview)	CLP benefitted from a handover process when he joined the practice to take over from another CLP: *"And then [Outgoing CLP] would brief me on what he'd already done with them [patients] and then we would have a meeting in the GP service clinic with some of the participants and then [Outgoing CLP] would kind of brief me again on where he sees the process going with these participants. So it was a bit of a handover process with some people."* (Cyan CLP, in-depth interview)	No data

Manuscript: Process evaluation of the implementation of the Glasgow 'Deep End' Links Worker Programme

Supplemental File 4 – Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

No. Item	Guide questions/description	Response
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the inter view or focus group?	Nai Rui Chng
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	MSc, MRes, PhD
3. Occupation	What was their occupation at the time of the study?	Research Associate
4. Gender	Was the researcher male or female?	Male
5. Experience and training	What experience or training did the researcher have?	Master of Research (MRes) training and extensive experience in qualitative research in non-healthcare settings
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	None but practices were aware that they were part of an evaluation. This was a condition of receiving the intervention (LWP) .
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Prior to the focus groups and interviews, each participant received written information about the purpose of the study. The researcher

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		introduced himself and his role both when inviting participants and at the start of the focus group discussion.
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	None

Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Framework analysis
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	All staff responsible for leading the Links Worker Programme (LWP) in their practice. This included lead general practitioner (GP), Community Links Worker (CLP), Practice Manager (PM) and designated reception or support staff identified by the PM. CLPs also identified up to two representative of community organisations to be invited.
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	First, an email, then by telephone
12. Sample size	How many participants were in the study?	
13. Non-participation	How many people refused to participate or dropped out? Reasons?	
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	All focus groups and most interviews were conducted in practices. A small number of interviews were conducted in public places like libraries and cafes. Emails were written in participants own place of work .

15. Presence of non-participants	Was anyone else present besides the participants and researchers?	None
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	All practice staff (such as GPs, Practice Managers, receptionists) involved in the Programme and a sample of CO staff.
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Topic guides weres pilot tested
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No. Many participants (GPs and CLPs) were interviewed more than once and many were also in focus groups. But questions asked were different
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	All focus groups and interviews were audio recorded by a digital recorder and a backup device (laptop)
20. Field notes	Were field notes made during and/or after the inter view or focus group?	During and after but not referred to in the analysis
21. Duration	What was the duration of the interviews or focus group?	Focus groups were between 1-1.5hrs; interviews were between 45-80mins
22. Data saturation	Was data saturation discussed?	No. Our analysis was deductive base on what was happening in practices implementing the LWP and participants' views on that

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23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	1 coder and at least 1 checker
25. Description of the coding tree	Did authors provide a description of the coding tree?	No
26. Derivation of themes	Were themes identified in advance or derived from the data?	NPT constructs were identified in advanced, factors influencing implementation were derived from the dat
27. Software	What software, if applicable, was used to manage the data?	Nvivo 10
28. Participant checking	Did participants provide feedback on the findings?	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Yes
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	No

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