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Interdisciplinary team working in the Irish primary healthcare system: Analysis of 'invisible' bottom up innovations using Normalisation Process Theory

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ABSTRACT

Interdisciplinary team working in primary care is a key policy goal across healthcare jurisdictions. The National Primary Care Strategy (2001) in Ireland is a top down policy for primary healthcare reform, which prioritised the development and implementation of interdisciplinary Primary Care Teams. The number of Primary Care Teams and features of their clinical meetings have been the key metric in Ireland for appraising progress with the implementation of the strategy. However, these have been challenging to organise in practice. The aim of this paper is to analyse empirical evidence of other forms of interdisciplinary working in Irish primary care, using Normalisation Process Theory.

Drawing on data from an on-line survey (71 GPs and 498 other healthcare professionals), and an interview study (37 participants; 8 GPs, 7 practice managers/admin support and 22 health care professionals) in three of the four Health Service Executive (HSE) regions in Ireland, we analyse the nature of these other forms of interdisciplinary working and describe innovations for service delivery that have been developed 'from the ground up' as a result. We examine levers and barriers to the implementation of these bottom up innovations. The levers are that these innovations *make sense* to professionals, are based on local needs and focus on preventive patient-centred care. They are *driven forward* by small groups of professionals from different backgrounds with *complementary skills.* The *evaluations* show positive impacts of the innovative services for patients, however, many have ceased to operate due to negative effects of the recent economic recession on the Irish healthcare system.

These flexible and localised innovations were shaped in part by the reforms set out in the 2001 Primary Care Strategy but also represent unintended effects of that policy because they are the result of bottom up interdisciplinary working that occurs alongside, or instead of, Primary Care Team clinical meetings. Furthermore, as they not captured by existing metrics, the interdisciplinary work and resultant services have been 'invisible' to senior management and policy makers. If appropriately acknowledged and supported, they can shape primary care in the future.

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1. Introduction

New challenges are faced by healthcare systems around the world including major demographic and epidemiological transitions [1–3]. Across many healthcare jurisdictions, primary care is the cornerstone of health policies. Several top down policies i.e. governmental policies [4–8] charge service planners and managers with the development of interdisciplinary teams as a means of improving the quality and increasing the efficiency of primary care and to improve patient care. The benefits of delivering primary care through interdisciplinary teams have been documented [9–12]. Specific benefits have been reported for patients with diabetes [13], hypertension [14], obesity [15] and depression [16]. Health care professionals have also noted advantages including improved professional satisfaction [17].

However implementation of these top-down policies has had mixed results [18–20]. For example, a recent integrative review explored levers and barriers to the implementation of interdisciplinary team working in primary care and found that this way of working makes sense to service providers as they have a shared view that it will have value for patients [20]. A key lever for interdisciplinary team working in primary care was for professionals to get experience of working together and to learn from each other in practice about their specialist areas and roles. This was often via structured, formal interdisciplinary team meetings. However, these can be difficult to organise and it is challenging to get full attendance, particularly from GPs [21]. Informal meetings and interactions also occur between primary care professionals. These "hallway consults" [22] enable shared decision-making and the communication of information about patients [21]. They also may be considered by busy clinicians to be more efficient [23]. These informal meetings and interactions represent more organic interdisciplinary working that occurs outside formal structures, 'from the ground up' or 'bottom up' working. This raises questions about how bottom up interprofessional working shapes, or is shaped by top down policy imperatives for interdisciplinary teams. There is anecdotal evidence of bottom up interprofessional working in the Irish primary care context which is the focus of this paper and to which we now turn.

1.1. Primary care policy in Ireland

Primary Care: A New Direction (2001) is a top down policy from the Irish Department of Health. It emphasised primary care as the central focus of the delivery of health and personal social services in Ireland and promoted an interdisciplinary team-based approach to service provision. Primary Care Teams (PCTs) were to be based in single locations where possible and to meet regularly (although the number of meetings per week/month was not stipulated in the policy). The aims of the proposed developments were to provide: a greatly strengthened primary care system; an integrated, interdisciplinary, high-quality, team-based and user-friendly set of services for the public; enhanced capacity for primary care to complement the existing diagnosis and treatment focus in the areas of prevention, early intervention, rehabilitation and personal social services [[1] (page 13) (see Box 1).

The Health Service Executive (HSE) is the national publicly funded organisation responsible for the provision of health and social services in Ireland. The HSE employs all health and social care professionals apart from GPs who work as independent contractors. This body has been responsible for overseeing the implementation of HSE PCTs and focused on establishing regular clinical team meetings between HSE primary care clinicians and GPs. In the HSE, a PCT is recorded as operating when at least one GP has agreed to participate in the team and attends a clinical team meeting. The HSE has appraised the implementation process by gathering metrics about specific features of PCT functioning such as the number of PCTs in the country, how often the teams meet and who attends the meetings.

Box 1: Summary of Primary Care Policy in Ireland.

The Primary Health Care Strategy (2001) proposed that Primary Care Teams (PCTs) would comprise of GPs (private contractors) and HSE employed nurses/midwives, health care assistants, home helps, physiotherapists, occupational therapists, social workers and administrative personnel.

A wider primary care network of other primary care professionals such as speech and language therapists, community pharmacists, dieticians, community welfare officers, dentists, chiropodists and psychologists would also provide services for the population of each primary care team.

The PCTs were to serve small population groups of approximately 3,000–7,000 people, depending on whether a region is rural or urban. The population to be served were determined by encouraging GPs to join together their existing lists of enrolled individuals and families, within certain geographic considerations. This geographic focus was to strengthen the capacity of the primary care team to adopt population health approaches to service provision.

PCTs were to work with local populations and other agencies, such as community development projects, to identify health and social needs including generalist aspects of services for mental health, elderly care, drug misuse, disabilities, family support and child health.

Liaison between primary and secondary care services were to be improved and integration between primary care and specialist services in the community were also to be strengthened.

Some PCTs are functioning as intended [24] and there are documented advantages in these PCTs, such as improved patient referral systems [25]. However, the HSE has been criticised for overestimating the success of implementation, for example even if GPs had ceased attending PCT meetings, the PCT was still counted as an operating PCT (Comptroller and Auditor General report [29] cited in [26]). A survey by the Irish College of General Practitioners (ICGP) of their membership found that 41.6% of respondents indicated that they were not part of a PCT. Of those who reported that they were, 64.6% reported that this was a *poorly functioning* PCT. While the response rate for the ICGP survey was only 17% and not all GPs in Ireland are members of the ICGP, the findings resonate with other analyses about the progress of policy implementation [25,27,28].

Other studies have identified problems with the implementation process.

A participatory action research project found that there were unanticipated challenges of developing inter-disciplinary teams with the *full complement of professionals* who can come together for, and *work as a team* at, PCT clinical meetings [25]. While this was a small study at one site, the findings are supported by others. Specifically, the challenge of GP participation in PCTs has been well-documented in other research [25–27]. This has to be understood in an environment of privately owned general practice: Income for general practices is based on patient consultations and meetings held during working hours reduce general practitioners availability for these. Given that GP attendance at PCTs is not reimbursed by the HSE, participating in PCT clinical meetings comes at a financial cost for general practices [26]. Implementation has also been problematic due to inadequate Information Communication Technology systems and a lack of co-located teams [25–27].

More recently, the economic recession has had negative effects. There has been a recruitment moratorium in the HSE and a significant gap between expected and actual funding for human resources and infrastructure for the whole health service, including primary care [26,30]. This has resulted in a Department of Health policy

shift from the 2001 vision for co-located teams in single locations to 'virtual' teams who seek to operate as a team without necessarily having established team relationships or appropriate ICT infrastructure (such as e-meeting facilities, teleconferencing) to facilitate their interactions [26]. A recent survey in 2016 found that primary care professionals and GPs perceive that there has been limited progress with the implementation of the 2001 Strategy 'on the ground' [27]. Other research found evidence of a disjoint between the formation of the 2001 Strategy and any concrete plans and resources for its implementation processes which has critically undermined progress with Ireland's 'top down' primary care policy [28]. Therefore, overall, the available evidence points to a significant gap between the 2001 policy imperative and its implementation in primary care practice.

At the same time, in keeping with the international literature [21–23], there is anecdotal evidence that a considerable amount of interdisciplinary working does occur in primary care settings *outside and around* the formal structures and parameters of the PCTs. There are accounts of interdisciplinary teams that have been established and led by GPs, rather than the HSE. There are also accounts of new services that have been developed 'on the ground' by HSE staff and GPs independently of HSE PCT working. This raises questions about the HSE PCTs and their implementation. For example, have these other forms of interdisciplinary working evolved in response to the activity of functional teams or have they evolved to fill gaps in settings where there are dysfunctional teams? What factors effect the implementation and sustainability of this other kind of interdisciplinary work?

Could it present a potentially valuable ways to inform delivery of interdisciplinary working in Irish primary care alongside (or instead of?) the 'top down' policies that promote HSE PCTs?

These questions have not been explored in a systematic way in Ireland and this represents a major gap in knowledge in the Irish context about the implementation of the 2001 strategy. Further, this warrants attention given most recent policy developments: The first joint Cross Party Oireachtas Committee, known as "Slainte Care (2017) and its accompanying National Service Plan (2018) reiterates commitments to the need for a move from hospital based to community care and the importance of interdisciplinary working to respond to the needs of the population [31,32].

The aim of this paper is thus to analyse bottom up interdisciplinary working in Irish primary care The specific objectives are to describe the nature of the innovative services that this leads to; to identify levers and barriers to their introduction and integration into routine practice and, finally, to consider implications for the broad policy goal of developing interdisciplinary teamwork as a means of improving the quality and increasing the efficiency of primary care.

2. Methods

2.1. Study design

The analysis in this paper was conducted as part of a larger, theoretically informed study of the implementation of PCTs in Ireland using Normalisation Process Theory (NPT). NPT is a contemporary sociology theory which provides a conceptual framework to analyse the work involved in introducing and integrating a new practice to the point of being routine i.e. normalised [33]. NPT has four constructs that act as a heuristic device to 'alert' researchers to the range of issues that impact on implementation processes (see Table 1) and has been used successfully across health care topics and settings [34]. The theory identifies four determinants of embedding (i.e. normalizing) complex interventions in practice (coherence or sense making, cognitive participation or engagement, collective action and reflexive monitoring) and the relationships between these determinants or constructs [35]. NPT has the capacity to elucidate the details of small scale implementation work but, also, to elucidate the ways in which macro, meso and micro levels of action and interaction shape that work [33]. Furthermore NPT provides a comprehensive conceptual framework for a 'whole system' analysis of the factors that promote or inhibit the routine embedding of complex interventions in health care practice and the work involved, by individuals and groups, to implement change in healthcare settings [33]. It has been used to investigate how various practices become routine in primary health care settings [36–40].

NPT was used in this study given its documented benefits as a heuristic device to explain and guide implementation processes from a range of perspectives and to provide insights that can be generalised across primary care settings [41–43].

This was a mixed-methods study which involved an on line survey and qualitative interview study with primary health care professionals and GPs across three of the four HSE regions in Ireland in the Republic of Ireland. Ethical approval was from the Irish College of General Practitioners Research Ethics Committee, Dublin.

The survey instrument was designed by the research team and consisted of 32 questions including closed and open questions. The survey was designed following the principles for constructing web surveys [44] with reference to the Primary Care Strategy [1], other pertinent literature for key concepts and common findings about implementation of PCTs in Ireland [45,46] and consultation with HSE collaborators who were aware of anecdotal evidence about interdisciplinary working that warranted formal analysis.

We also drew on our knowledge of Normalisation Process Theory [33] to formulate questions.

Following best practice [47,48], the survey was piloted with relevant health professionals.

The survey was piloted and conducted over a four-month period in 2014.

Results from phase 1 of the on line survey, which explored perceptions of the progress with the implementation of PCTs, have previously been published [27]. For this paper, we focus on survey findings about interdisciplinary working that occurred outside formal PCT structures in the Irish Health Service Executive.

2.2. Recruitment and sampling

The recruitment for the survey has been previously described [27] with the target population consisting of GPs associated with a Graduate Entry Medical School and primary healthcare professionals employed by the HSE in 3 of 4 HSE regions.

Recruitment of participants for the qualitative component was via the survey. The final question on the survey asked respondents if they would like to participate in an interview study and 81 of 569 respondents volunteered and provided their email details. In follow up email correspondence, they were asked to provide details about their primary care setting, experience of HSE PCTs and bottom up innovations.

We examined these details and identified three exemplars of bottom-up inter disciplinary working and these were brought forward as in-depth case studies for the qualitative component.

For this, we employed maximum variation sampling [49] to identify suitable cases that reflected different aspects of bottom up inter-disciplinary working. The sites were from different regions in the HSE, represented urban (site 1) and more rural settings (site 2 and site 3) and presented examples of bottom up activities that developed independently of any HSE PCT structure (site 1) versus ones that emerged in sites with HSE PCTs (sites 2 and 3).

To recruit participants at each of the three case study sites, health care providers were forwarded an information leaflet about

Table 1
Normalisation Process Theory (NPT) applied to the analysis of bottom up interdisciplinary innovations in primary care.

NPT Construct	Explanation
Coherence	Can stakeholders make sense of bottom up innovations as a new way of working? Where coherence is strong there is a shared understanding across all stakeholders of what this work will entail for individuals. There is common understanding about the value and purpose of this work.
Cognitive Participation	Will they engage with 'buy into' bottom up innovations? Where cognitive participation is strong there are legitimate reasons for stakeholders to get involved and there are strong motivations for them to engage in this work. There are champions to support the work and resources available to get the work up and running
Collective Action	What do stakeholders need to enact bottom up innovations in daily practice? Where collective action is strong there is shared understanding about roles and responsibilities among stakeholders, there are resources available and structures in place to support the work in day to day practice and there are good relationships between and across stakeholders which support the work.
Reflexive Monitoring	Can stakeholders formally or informally appraise the impact of bottom up innovations? Where reflexive monitoring is strong, there is agreement that the work has resulted in benefits for individual and wider community, there are clear evaluation mechanisms in place and there is a shared understanding about what changes are required in structures to sustain and embed the work.

the study via a gatekeeper (the original volunteer from the survey, a PCT co-ordinator or administrator). Healthcare providers who were interested in taking part in the study emailed the researchers directly.

Finally, recruitment for follow up in-depth interviews about bottom up innovations was conducted at two of the three sites via purposeful sampling. The purpose of these additional interviews was to expand our understanding of the implementation processes of a specific exemplar of bottom up innovation – a Falls Prevention Programme. The rationale for this was three -fold. First, the Falls Prevention Programme had been initiated as a result of informal communication and interactions and was developed outside the remit of any PCT. Second, many bottom up innovations described in the survey and interview study were no longer running due to the impact of the recession on primary care working (discussed further under Results). Third, the finding that Falls Prevention Programmes ran at two of the three sites provided a valuable opportunity to get in-depth, comparative information about this specific innovation. Fig. 1 summarises the three stages involved.

2.3. Data collection and analysis

As mentioned earlier, the survey included questions about interdisciplinary working that occurred outside formal PCT structures in the Irish Health Service Executive. It gathered initial data about the nature of this work (see Q15-Q19, Supplementary File 1). Data from closed questions were analysed using SPSS and data from open questions were analysed following the principles of thematic analysis with 10% double coded by the research team.

Qualitative interviews were designed to allow in-depth exploration of bottom up innovations (see Supplementary File 2). These were conducted in 2015 and 2016 with HSE employees, GPs and other private primary care professionals (n = 42). The topic guide was informed by NPT and piloted. Interviews were audio recorded and transcribed. All data was anonymised to preserve confidentiality. NVivo10 was used for data management and analysis. We followed the principles of deductive analysis to code the data onto the four NPT constructs of Coherence, Cognitive Participation, Collective Action and Reflexive Monitoring and their subcomponents. Data was coded in NVivo by the first author ET and 10% of data was double coded by members of the by the research team (AMF and MOS) to ensure consistency across analysis. We held several data analysis meetings to discuss emerging findings and interpretation, search for deviant cases (none identified) and examined if there were data that fell outside the four NPT constructs (e.g. data about problems with the recession in general or HSE functioning more broadly).

We convened a national workshop with participants in service provider and managerial level roles from all HSE regions. We presented findings, data interpretation and preliminary recommendations relating to bottom up inter-disciplinary working in the HSE. Workshop participants confirmed that these resonated strongly with their experiences and encouraged dissemination of study findings to the HSE and Department of Health.

3. Results

3.1. Participants in the survey

There were 569 eligible responses to the entire survey including 71 GPs (response rate of 71% from 100 practices) and 498 other healthcare professionals (response rate at most 22% of HSE full-time equivalent posts) – see Table 2. Respondents from the HSE in the main comprised OTs, Physiotherapists and SLTs. While most occupations within the HSE were adequately represented in the sample, the proportion of responses from nurses (18%) was smaller than expected given that over half (55%) of the healthcare professionals employed by the HSE are nurses. Of the 71 GPs who responded, 34% were in rural practices, 41% were in mixed urban/rural practices and 24% were in urban practices, largely representative of all GP practices in Ireland. Response rates across the three HSE regions were broadly similar.

Of those who provided valid demographic information (n = 427), respondents were predominantly female (82%) and the majority (72%) were aged less than 50 years. The majority of respondents (53%) were 15 years or more post qualification. Of the 71 GPs, the majority (62%) were male; aged 50 years or more (57%) and were 15 years or more post qualification (67%), representative of the GP profile in Ireland [50]. 78% of respondents reported that they personally were a member of a formal PCT.

3.2. Participants-qualitative interviews

Forty- two interviews were conducted across 37 individuals (female n = 28; male n = 9). The participants represented a cross section of health care professionals working on HSE PCTs and the private GP led team with a range in ages from 27 to 65 years, representing a variety of experience of working in primary care settings in Ireland (see Table 3).

One to one interviews were held in a location of preference to the interviewee usually at their work/ PCT location. They lasted between 33 min to 1 h and 30 min (mean 49 min) with no difference between the interviews at the 3 sites. Follow up interviews at the 2 sites that focused on the Falls Prevention Programmelasted between 20–46 min (mean 33 min).

All interviews were audio recorded and transcribed professionally by a transcriber who signed a confidentiality agreement. All

Table 2
Demographics of respondents to Survey (n = 569).

Characteristic	n	% of total responses	% of valid responses[a]
Age group			
≤35	106	18.6	25.1
36–49	197	34.6	46.7
≥50	119	20.9	28.2
Not given	147	25.8	
Gender			
Female	344	60.5	81.5
Male	78	13.7	18.5
Not given	147	25.8	
Occupation			
Occupational therapist	77	13.5	18.0
General practitioner	71	12.5	16.6
Physiotherapist	63	11.1	14.8
Public health/registered general nurse	63	11.1	14.8
Speech and language therapist	49	8.6	11.5
Manager	25	4.4	5.9
Dietician	18	3.2	4.2
Social Worker	13	2.3	3.0
Psychologist /Counsellor	12	2.1	2.8
Other occupations[b]	36	6.3	8.4
No occupation given	142	25.0	
Years since qualification			
1–5	32	5.6	7.7
5–10	76	13.4	18.3
10–15	89	15.6	21.4
15+	219	38.5	52.6
Not given	153	26.9	
HSE Region			
HSE West	174	30.6	42.2
HSE Dublin Mid-Leinster	143	25.1	34.7
HSE South	95	16.7	23.1
Not given	157	27.6	
Member of a formal primary care team			
Yes	388	68.2	78.1
No	109	19.2	21.9
Not applicable/not given	72	12.6	

[a] % Of responses excluding not given.
[b] Home help, community pharmacist, community worker, dentist, primary care facilitator, community doctor, general practice administration staff, general practice nurse, community welfare officer, area medical officer.

Table 3
Participants who participated in qualitative interviews.

Location	n	Demographics	Data gathered about a Falls Prevention Programme
Case Study Site 1	n = 10	Male = 2 and Female = 8	
Private GP- Led interdisciplinary team	2 GPs		
	2 Physio	Age range 27–55 years	
	1 Practice Manager		
	1 Office Manager		
	1 Dietician		
	1 Podiatrist		
	1 Primary Care Development Officer		
	1 Operations Manager		
Case Study Site 2	n = 8	Male = 2 and Female = 6	Three follow up in-depth interviews conducted with OT, Physio and PHN
HSE PCT	2PHNs		
	1 Centre Manager	Age range 29–65 years	
	1 Social Worker		
	1 Physio		
	1 Clerical Officer		
	1 GP		
	1 OT		
Case Study Site 3	n = 19	Male = 5 Female = 14	Two follow up in-depth interviews conducted with 2 Physios
HSE PCT	5 GPs		
	3 Physios	Age range 28–52 years	
	3 PHNs		
	1 ADPHN		
	2 Psychologist		
	1 OT Manager		
	1 OT		
	1 SLT		
	1 Home Help Coordinator		
	1 Primary Care Development Officer		

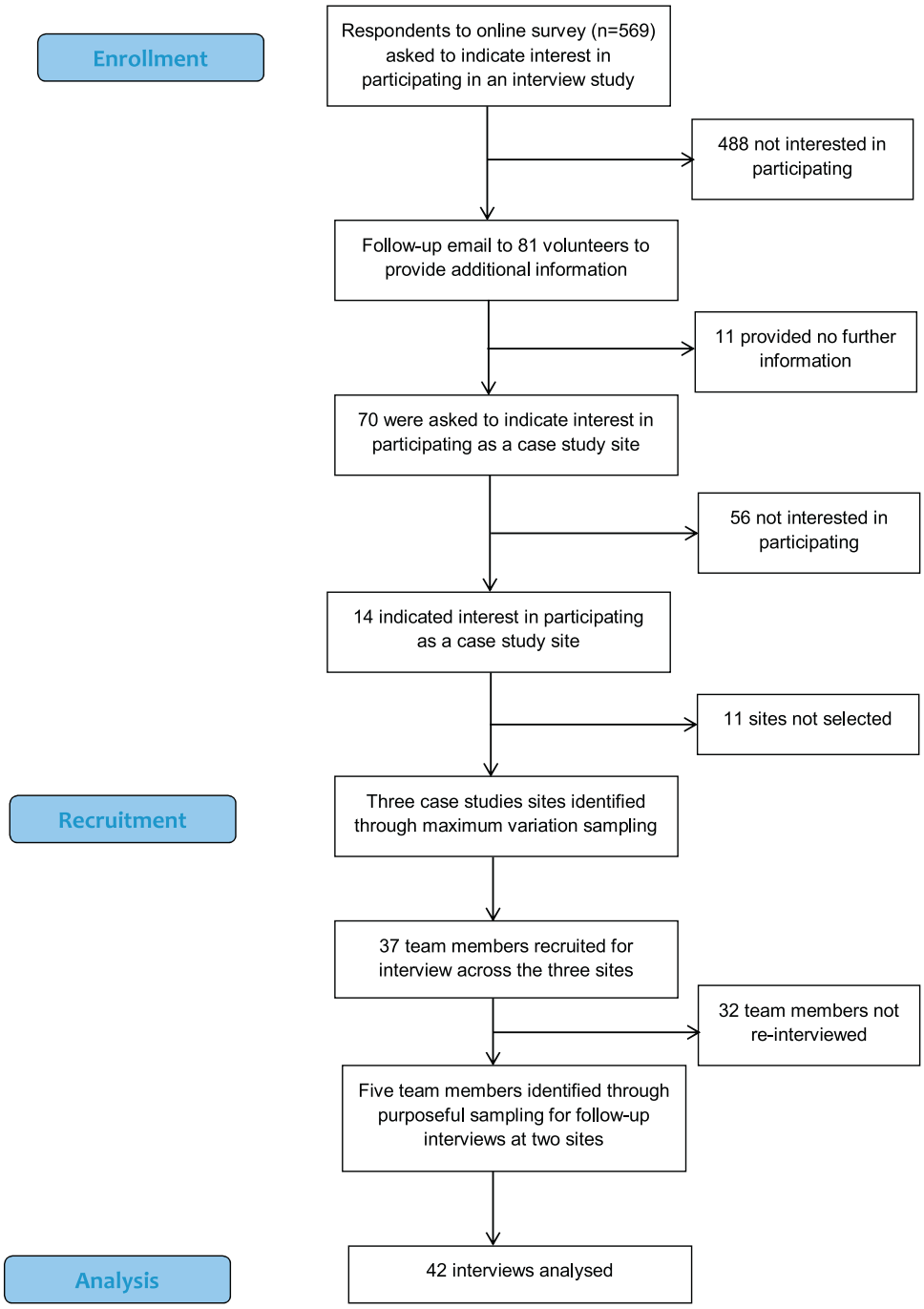

Fig. 1. Flow chart for recruitment of participants to the study.

participants were assured of confidentiality prior to and following the interview.

All participants received a copy of their transcript and then transcripts were subsequently anonymized to preserve confidentiality.

Below, we present findings from the survey and interviews across NPT's four constructs. The survey findings relate to responses to closed questions and an analysis of free text responses to open questions on examples of interdisciplinary working and its benefits and challenges. The interview findings relate to a range of bottom up innovations discussed by participants and we focus on quotes from the Falls Prevention Programmes as an exemplar throughout this section, to aid understanding and synthesis of the levers, barriers and their inter-relationships.

3.3. Coherence: can stakeholders make sense of the bottom up innovation as a new way of working?

The majority (n = 351, 78%) of survey respondents agreed, or strongly agreed, with the statement that there are other forms of interdisciplinary working that were not captured by HSE metrics about PCTs. The rate of agreement was broadly similar across disciplines (81% of OTs, Physios, SLTs; 75% of nurses; 73% of GPs). Of those that agreed that there were other forms of interdisciplinary working, 81% agreed that this interdisciplinary working was to progress individual patient care and 35% agreed it was to develop new services to improve care for groups of patients.

There was agreement across all participants in the interview study that patient centred preventative care is at the heart of

Table 4
Examples of bottom up innovations in Irish primary care from survey respondents and interview participants.

Bottom- Up Innovation	Description of Role Involved
Design and delivery of educational events in the community for preventive care and health promotion:	Social worker, Dietician and Public Health Nurses working together on a *Healthy Eating on a Budget* programme for patients of their PCT, which was located in a deprived area Public Health Nurses, Occupational Therapists and Physiotherapists working together on a *Falls Prevention Programme* for older people Psychologist, Psychiatrist, GP, community youth worker, local business people and Garda Liaison Officer working together to deliver a *Youth Mental Health* programme to provide counselling support and foster positive mental health initiatives for young people
Development of integrated care plans for people with complex health needs:	GPs, Public Health Nurses, Assistant Director of Public Health Nursing, Occupational Therapy Manager, Occupational Therapist and Physiotherapist working together to create new *community based services for people with dementia* Nurses, Dietitians, Physiotherapists, Occupational therapists, Speech and language therapists working together to *plan care for patients after hospital discharge* Joint Public Health Nurse, Physiotherapist and Occupational therapist visits to clients in their homes to support them and their carers, for example *joint visits to people living with MS*
Advocacy on behalf of patients	GP and Public Health Nurse liaising with each other, and with social services, for example *Meals on Wheels services*, to support older people to live in their homes

bottom up innovations. These innovations related to design and delivery of educational events in the community, development of integrated care plans for patients with complex needs and advocacy work (see Table 4, compiled from survey and interview data). There was evidence in the survey and interview studies that health professionals believed that this type of working had scope to improve patient care.

Focusing on the Falls Prevention Programme, there was strong coherence about this across all health professionals interviewed. This programme made sense to them because they saw it as a mechanism to deliver integrated care for patients. This fitted with their understanding of the ethos of primary care to deliver preventative care in the community for patients and prevent hospitalisations.

> *my director of nursing [. . .] . . .said to me my objective here as a the coordinator of elderly care was to keep people out of nursing homes and out of hospital. To keep them at home and independent and I think with something like the falls prevention that is exactly what we did PHN CS Site 2*
> *So it works very well, I mean osteoporosis is massively on the increase. And it's going to be very, very costly to the health service so anything we can do, I mean if you have osteoporotic people falling you know the statistics are huge. . .if you can prevent falls its huge not just for the health service but for people themselves, for quality of life, you know. . . Physio CS Site 3*

3.4. Cognitive participation: will they engage with it/ 'buy into' the bottom up innovation?

Interview participants explained that champions were required to get the innovations off the ground. The professional background of these champions differed depending on the particular innovation. In the case of the GP led interdisciplinary team, this was initiated by a GP who engaged with other healthcare professionals about coming together to operate outside the HSE as a team. Subsequently, discussions between the GP and physiotherapist led to the development of a new interdisciplinary antenatal service (Site 1). A Social Worker was responsible for leading on a programme to support healthy dietary habits among people living in a deprived area - "Healthy Eating on a Budget" programme (Site 2). A Geriatrician and GP were responsible for leading the development of a dementia specific programme (Site 3) and physiotherapists led the development of Falls Prevention Programmes in close collaboration with Occupational Therapists (Sites 2 and 3).

> *Yes I would say it was probably more of it we [OT and Physio] were more of a driver probably, more of the Allied Health would [have been] more of a driver of that particular group than . . .the whole [HSE PCT] team setting. OT CS Site 2*

Patient need in the local area was driving the initiatives and was a key lever for 'buy in' from other relevant professionals. Therefore, the specific programmes were tailored for a specific patient profile, and health professionals felt that it was legitimate for them to get involved in the development or roll out of these bottom up innovations. For example, an aging patient profile at site 3 led to the development of the dementia specific programme there.The motivation to set up the Falls Prevention Programme in sites 2 and 3 came about because of the elderly patient profile and the work was considered by the physiotherapists and occupational therapists to be in line with their professional role on the HSE PCT to deliver preventative care in the community, echoing data in Coherence about the value of the Falls Prevention Programme.

Across all professionals interviewed on the teams, there was a belief that the engagement of GPs with the team was particularly important to support the work, mostly to share information with patients about, and make referrals to, the programmes.

> *the GPs were informed and they were very pro for it as well. And it was going to be an asset to the clients in the area. PHN CS Site 2*

3.5. Collective action: what do they need to enact bottom up innovation in daily practice?

A major lever to developing other forms of interdisciplinary working was informal communication between professionals who had established, good relationships with each other. This was evident across all interviews about bottom up innovations. In the case of the GP led interdisciplinary team, the GP informally discussed the idea with colleagues in her professionals network and they then progressed as team with a combination of formal team meetings and 'hallway consults'. In the other sites, good relationships between members of the HSE PCTs also led to informal conversations in the hallway or coffee room and sparked ideas for new services.

Participants in the interview study who were members of HSE PCTs described ways in which the work on bottom up innovations was connected to their work on the PCT. The programmes such as the one mentioned above in site 3 for improving dementia care were initiated and rolled out after initial discussions at PCT clinical meetings. Others such as the Falls Prevention Programme were a function of informal conversations between HSE PCT members and were not discussed or progressed through PCT clinical meetings.

The work relied on alternative formal and informal channels of communication. The reasons for this varied depending on the site and included lack of time at the clinical PCT meetings to discuss their ideas. Some participants reported that it was difficult to find time for their informal interactions. The lack of integrated ICT systems and not being co-located hampered communication between

professionals for bottom up interdisciplinary working according to the survey findings.

Bottom up innovations relied strongly on the existing roles and skill sets of professionals. There was agreement among interview participants that no specific training was required for the Falls Prevention Programme as they already had the necessary skills. This meant that once the right mix of professionals had discussed and agreed to develop the programme, and could identify a meeting room or venue to hold the programme in, very few other resources were required.

I don't remember any specific training for it was just part of our role. I was in there as a the nurse's role, the physio was in on the physio and the OT was in as the OT. . ..Doing their job we are just doing it together. PHN CS Site 2

The crazy thing is it was the cheap one of the cheapest things to run. . .It was the price of a packet of biscuits, a carton of milk and a cup of tea for patients you know PHN CS Site 2

In terms of conducting the programme, interview participants found it was workable and satisfying. There were positive accounts of the interactions between different HSE health care professionals to facilitate joint working, providing holistic care for patients and some improved outcomes reported for clients/patients.

Everything I would have thought was very practical and even you know the GP and the nurses input and everything was geared around people a really multi you know team approach around a real holistic approach as you said of kind of addressing a number of issues OT CS site 2

There's a huge social aspect and definitely they [patients] are being challenged, they are doing things they wouldn't do in a million years by week six. They are working on balance beams, throwing and catching balls, standing on one leg, not all of them obviously - but some of them. Physio CS Site 3

3.6. Reflexive monitoring: can stakeholders informally or formally appraise the impact of bottom up innovation?

Interview participants explained that they conducted formal pre and post evaluations using clinical outcome measures to assess the impact of their bottom up innovations. Subjective impacts were also reported by participants.

Survey and interview participants' informal reflections on their work were generally positive. They emphasised benefits for patients including improved outcomes and quality of life and timely, efficient care and co-ordination of care. Participants also talked about the benefits for professionals. In the Falls Prevention Programme, these included increased motivation for the professionals and the educational function and increased awareness for the HSE PCT members about falls and falls prevention. Health professionals described their improved approach to holistic care for patients and their increased awareness of other approaches to the patient's needs. In addition, one physio at Site 3 reflected on how the Falls Prevention Programme supports interdisciplinary working which may not happen otherwise with members of the HSE PCT outside of the PCT clinical meetings. She saw the Falls Prevention Programme as supporting cross -disciplinary and cross sectoral working. Overall, these initiatives were appraised as being cost effective (because they drew on expertise and collaboration from across team members without significant additional resources required to deliver the programme) and led to knowledge transfer, and information sharing to problem-solve complex patient cases.

I think the impact on the service users, the clients is huge. Because it does improve their functional ability, and also to remain independent both at home and within the community so it could make the difference of them leaving the house and not leaving the house. Physio CS Site 3

Well if you didn't do the programme then everyone would be working within their own discipline so the GPs might be they might be amending or changing the medications but they are not getting the physio in conjunction with that you know. Physio2 CS Site 3

The key issue about sustainability was that the economic recession led to budget cuts and a recruitment moratorium in the HSE. This meant that staffing levels in the case study sites were drastically affected and the management of ever extending waiting lists became the main focus for all front line staff. This meant the preventive bottom up innovations, such as the dementia programme, were struggling to survive and the Falls Prevention Programmes ceased.

Well, em, we lost physios the waiting lists for the physios downstairs is massive they are barely able to meet the need that is there at the moment. So their workload became increased, the OT was covering a larger area working less hours and I am down one . . .a community RGN. There is only two of us. . . there is more demands on us so that was the whole team taken up. PHN CS Site 2

Well HSE metrics, they only count functioning teams. And they count functioning teams where GPs are attending. So which doesn't give you the big picture. Primary Care Development officer CS Site 1

4. Discussion

4.1. Summary of findings

This analysis provides novel, empirical evidence about bottom up interdisciplinary working that occurred outside formal PCT structures in the Irish Health Service Executive. It provides descriptions of innovations for service delivery in Irish primary care. Following NPT, these bottom up innovations had strong *coherence* and *cognitive participation.* They resonate with major policy goals for patient-centred, quality care because of their focus on health promotion, disease prevention, integrated and co-ordinated health care. They have been established as a result of health professionals' commitment to local needs. In terms of *collective action,* the initiation and development of the innovations did not usually rely on communication structures prescribed by the HSE, that is formal, structured PCT clinical meetings. Instead, the primary levers for their initiation were informal, ad hoc communication between staff, allocation of staff time, skill sets and creativity. In terms of *reflexive monitoring*, formal appraisals of these bottom up innovations by the health professionals involved suggest that they had a positive impact on patient care. According to participants in this research, the capacity for these innovations to be sustained has, however, been negatively effected by the recent economic recession and the staff moratorium. Furthermore, they were essentially 'invisible' in the HSE when they were in operation. They were not captured by the formal system level metrics for interdisciplinary working, which focused only on HSE PCT functioning. These barriers have inhibited their implementation as routine, normalised ways of working.

4.2. Study strengths and limitations

There was variation in response rate for the survey from 71% of GPs contacted to 22% for HSE staff and this is a function of weaknesses in health information systems in Ireland with no central electronic mailing list of all HSE staff in the three regions and limited access to email for some nurses. Overall, however, the majority of the sample were named members of a formal HSE PCT. It is diffi-

cult to find definitive figures of HSE PCT membership and this may be higher than the national average but it does provide us with the views of experienced professionals working across established inter disciplinary teams in Ireland.

The sampling for the qualitative component was conducted in an iterative and purposeful manner. There are only three case study sites but these were selected as exemplars based on our research interest and with attention to maximum diversity sampling.

The use of NPT means that the analysis of bottom up interdisciplinary working has been conceptually comprehensive and robust. It enabled a "thick description", [51] of an underexplored phenomenon providing scope for transferability of the analysis and findings to other health care jurisdictions to build a comparative knowledge base.

4.3. Final discussion and implications

In keeping with other settings [21–23], interdisciplinary working in primary care in Ireland is characterised by both top down and bottom up imperatives. This analysis extends the literature by providing a detailed account of innovative services that were developed as a result of interdisciplinary working between primary care professionals.

Research on PCTs in Ireland prior to this was descriptive [12,25,26]. While specific barriers were identified in the literature and helped us to understand some of the problems with implementation, such as getting the full complement of health professionals involved or ICT challenges, these issues were not theoretically framed. This analysis using NPT, synthesises data about levers and barriers to implementation work. It provides conceptual insight into factors known to impact on the success, or not, of health professionals work to embed a new practice in their daily routines.

Evidence of strong *coherence* among participants about the value and importance of interdisciplinary working is clear. The Department of Health's policy goals relating to preventive care and patient centeredness, as articulated in the 2001 Primary Care Strategy were very much at the centre of these bottom up innovations. This finding resonates with some previous studies [12]. The novelty of our findings are that they show *cognitive participation* with bottom up interdisciplinary working across health professionals, including GPs. This is important because low participation by GP in HSE PCTs should not be taken to mean that GPs are not interested in interdisciplinary working. It does make sense to them and their engagement with bottom up innovations appears to be facilitated by *collective action* that is more workable in their daily routines. For example, the reliance on existing relationships and informal communication are in contrast with documented barriers for GP participation in HSE PCTs [25,26]. Collective action among other health professionals was possible because OTs, physios and nursing staff used informal discussions to stimulate the creative design and delivery of programmes, such as the Falls Prevention programme. They drew on their differential expertise and skill-sets and required minimal resources, other than using their time for preventive service delivery. The significance of these findings is that they reveal that structured HSE PCT meetings are not the only space for interdisciplinary team working in Irish primary care. The innovations emerged from informal discussions between staff who had autonomy to progress their ideas in other spaces. This is in keeping with Bailey et al., who found that job designs that facilitate autonomy is one important antecedent of staff engagement in organisational settings [52].

Findings about *reflexive monitoring* are important because, while bottom up innovations were appraised by those involved with their enactment, they have been 'invisible' in the healthcare system and to policy makers. The work has not been captured by HSE metrics, which have focused exclusively on PCT clinical meeting activity. This situation is difficult for staff morale whose work goes 'unnoticed' [30,53] and, also, raises questions about the completeness of the evidence base in the HSE for service planning and for further policy reform. In terms of their sustainability, the negative impact of the recession on the bottom up innovations resonates with other Irish research about the primary care system more broadly. A quantitative longitudinal trend analysis over the period 2008 to 2014 of the impact of austerity on the health workforce found that the decline in staffing of non-acute care was over double than in acute care [30]. While there is some evidence of a limited window of benefit from austerity in terms of health system efficiency and rationing, it was costly in human and financial terms [54].

Taken together, this analysis reveals novel findings about the ways in which these bottom up innovations were *shaped by* the top down 2001 policy. This policy from the Irish Department of Health, and its operationalisation by the HSE [1], seems to have stimulated interactions between health care professionals in primary care about the broad purpose of primary care and the skills sets they have for preventive patient-centred care. Therefore, while the PCT infrastructure was not fully implemented following the 2001 strategy, it appears to have been a resource for other forms of interdisciplinary working. This elucidates an *unintended effect* of the top down policy on practice because there were no explicit mention of it in the (2001) Primary Care Strategy. The emphasis there, and the ensuing work of the HSE to implement the strategy focused on HSE PCTs only.

Given the emphasis on interdisciplinary working in the more recent Slainte Care policy and National Plan for Health [31,32] there are three important implications of this research for Irish primary care. First, it is essential to have more resources in primary care and to develop policies and mechanisms in the HSE to harness the commitment of primary care professionals to their professional identities and their aspirations for patient care. Front line staff should be enabled to re-ignite creative conversations and autonomous actions across disciplines to develop locally relevant bottom up innovations. Second, these innovations should be recognised as important forms of interdisciplinary work that enable a *shaping of primary car*e policy and practice in the Irish context *from the ground up*.

Existing HSE metrics for interdisciplinary working should be *broadened* to capture all forms of interdisciplinary working.

Finally, it is necessary to think through the internal policies and mechanisms by which the innovations can be fully appraised for impact on patient care and, where appropriate, extended from their local site of origin to other settings. This is important in order to fulfil HSE and Department of Health imperatives for equity and comprehensive coverage to primary care [32].

4.4. Conclusion

Our study findings lead to a fundamental recommendation for those involved in the implementation of 2017 Slainte Care and the National Service Plan: Acknowledge the ways in which all forms of interdisciplinary working in primary care is being enacted in practice and identify ways to make local innovations visible and rewarded. This will enable health care professionals' creativity and commitment to flourish and feed into the realisation of national policy goals for primary care and population health.

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Declaration of Competing Interest

The authors declare no conflict of interest.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.healthpol.2019.09.002.

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