

Implementing population health management: an international comparative study

A study in
population
health
management

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Abstract

Purpose – The purpose of this paper is to gain insight into how population health management (PHM) strategies can successfully integrate and reorganize public health, health care, social care and community services to improve population health and quality of care while reducing costs growth, this study compared four large-scale transformation programs: Greater Manchester Devolution, Vancouver Healthy City Strategy, Gen-H Cincinnati and Gesundes Kinzigtal.

Design/methodology/approach – Following the realist methodology, this explorative comparative case-study investigated PHM initiatives' key features and participants' experiences of developing such initiatives. A semi-structured interview guideline based on a theoretical framework for PHM guided the interviews with stakeholders (20) from different sectors.

Findings – Five initial program theories important to the development of PHM were formulated: (1) create trust in a shared vision and understanding of the PHM rationale to establish stakeholders' commitment to the partnership; (2) create shared ownership for achieving the initiative's goals; (3) create shared financial interest that reduces perceived financial risks to provide financial sustainability; (4) create a learning environment to secure initiative's credibility and (5) create citizens' and professionals' awareness of the required attitudes and behaviours.

Originality/value – The study highlights initial program theories for the implementation of PHM including different strategies and structures underpinning the initiatives. These insights provide a deeper understanding of how large-scale transformation could be developed.

Keywords Realist evaluation, Cross-sector partnerships, International comparison PHM initiatives, Population health management

Paper type Research paper

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1. Introduction

The term “Population Health Management” (PHM) refers to the large-scale transformation efforts required for the reorganization and integration of services across public health, health care, social care and community services, in order to improve population health and the quality of care, while at the same time reducing costs growth (Triple Aim (TA)) (Steenkamer *et al.*, 2017). In different countries, a wide range of organizations spanning different sectors including the health and care sector and other sectors such as the housing-, educational- and business sectors, are working together to design PHM initiatives and implement strategies addressing the wider determinants of health (personal, social, economic and environmental factors impacting populations’ health) (McGovern *et al.*, 2014). Due to the broad scope and aims of PHM initiatives, such organizations often adopt place-based models in order to implement more integrated and cross-sectoral strategies for the intended population (Fraze *et al.*, 2016; Siegel *et al.*, 2018).

A wide variety of such models have been described in previous studies, e.g. Siegel *et al.*, 2018; Frazee *et al.*, 2016; Mongeon *et al.*, 2017. For example, the World Health Organisation has evaluated the Healthy City program adopted by cities all over the world (De Leeuw, 2012). Similarly, in Europe new PHM models are being evaluated such as *Gesundes Kinzigtal* in Germany (Pimperl, 2017), the PHM pioneer sites in the Netherlands (Drewes *et al.*, 2016) and the sustainability and transformation partnerships (<https://www.england.nhs.uk/integratedcare/stps/view-stps/>) and City Deals in the United Kingdom (UK), e.g. Manchester Devolution (<http://www.gmhsc.org.uk/about-devolution/>).

While previous studies have described the “what” of PHM initiatives – e.g. the type of governance structures implemented or financial arrangements made (Hester, 2018; Matthews *et al.*, 2017) – they have not compared (international) PHM initiatives to understand “how” large-scale transformation of services across (public) health and social care and wider public services is being implemented. Such a comparison may lead to better insight regarding which strategies enable the successful development of PHM initiatives within different contexts. Furthermore, a deeper understanding of participants’ reasoning and behaviour is necessary as it is people and not structures that give meaning to the development of PHM (Glasgow *et al.*, 2012; Dickinson, 2014; Rhodes, 2014). Specifically, PHM initiatives may be successful in certain settings and not in others, because the mechanisms, i.e. the reasoning and behaviour of people needed for success are triggered to a different extent in different contexts (Jagosh *et al.*, 2013). Because PHM is still in a relatively early development stage, it is difficult to know how PHM initiatives are impacting population health outcomes. This study therefore examines how local policymakers and senior managers from four different countries expected their strategies to contribute to PHM and what their key learnings were to date. The aim of the study was to generate initial program theories about the development of PHM initiatives. The program theories and underlying strategies, contextual factors and mechanisms that influence PHM initiatives’ development are important lessons learnt to consider for the successful implementation of PHM. This study addressed the following research question.

RQ1. What initial program theories describe the development of PHM: what are the PHM strategies, contextual factors and mechanisms that influence PHM development?

2. Methods

This exploratory study applied a realist evaluation methodology. A key aspect of the realist methodology is the supposition that initiatives work differently in different contexts (Pawson, 2006; Wong *et al.*, 2017). From a realist point of view, strategies offer or deduct opportunities or resources (e.g. information, skills, resources) within a certain context (Wong

et al., 2017). How involved people, due to the resources and opportunities available to them in this context change their reasoning or behaviour, influences the outcomes of these strategies (Pawson, 2006; Wong *et al.*, 2017). In order to examine which strategies work, how and why, the authors explored the impact that interactions between the applied strategies (S), contextual factors (C) and mechanisms (M) had on PHM development (i.e. the outcomes, O) (see Table 1 for the definitions). Following an iterative process, the authors identified the contextual factors of each initiative and constructed strategy–context–mechanism–outcome (SCMO) configurations. Further information about the realist methodology can be found elsewhere (Best *et al.*, 2012; Wong *et al.*, 2017; Saul *et al.*, 2013).

2.1 Sample

The research team aimed to select PHM initiatives from different countries. The team discussed initiatives that were described in two recent reviews on PHM (Steenkamer *et al.*, 2020; Hendrikx *et al.*, 2016) (total $N = 61$). Ultimately, four initiatives were chosen because they were deemed exemplary in terms of their collaboration across a wide range of stakeholders, including the health care sector, social care sector and wider public services. Furthermore, initiatives were also required to be innovative in one or more of the following criteria:

- (1) Engaging and collaborating with other sectors including e.g. private and not-for-profit sector including the housing sector, educational institutions, (local) businesses with the aim of reorganizing and integrating public sector services across the different sectors and thus achieve the TA;

Strategy	Refers to intended plans and/or actions Jagosh <i>et al.</i> (2013). In this study, strategies relate to the reorganization and integration of public health, health care, social care and community services, including “partner sectors” (e.g. housing, economic development, transport)
Context	Pertains to the “backdrop” of PHM initiatives Jagosh <i>et al.</i> (2013), i.e. the pre-existing circumstances in which the strategies are implemented (e.g. the different multilevel sociocultural, relational, economic, political or historical factors Glasgow <i>et al.</i> (2012)
Mechanism	Refers to the generative force that leads to outcomes and highlights changes in stakeholders’ reasoning and behaviour triggered by changes in contexts; specifically, how and to what extent stakeholders used resources to try and effect change Best <i>et al.</i> (2012)
Outcome	Refers to (un)intended process outcomes achieved (or expected to be achieved) through strategies implemented within PHM initiatives Jagosh <i>et al.</i> (2013). Process outcomes are e.g. changes in knowledge, attitudes, behaviour, policies or organizational structures
Strategy–context–mechanism–outcome (SCMO) configurations	SCMO configurations are heuristics that portray the relationships between strategies, contexts, mechanisms and outcomes; used to understand why strategies work or not in certain contexts (Haynes <i>et al.</i> , 2018). SCMOs are used to generate or refine (initial) program theories
(Initial) program theories	Are hypotheses about how a program (component) may or may not work, under what circumstances, and with what outcomes. A program theory therefore hypothesizes how a program (component) is expected to work, given contextual influences and underlying mechanisms (Pawson and Tilly, 1997; Jagosh, 2019)

Table 1.
Definitions of main
realist evaluation
concepts

- (2) Data infrastructure covering multiple sectors and
- (3) Innovative contracts and financial arrangements covering multiple sectors.

The following four initiatives were chosen.

- (1) Generation Health (GEN-H) in the US;
- (2) Greater Manchester Devolution (GM) in the UK;
- (3) Vancouver Healthy City Strategy (VHCS) in Canada and
- (4) Gesundes Kinzigtal (GK) in Germany.

The contextual differences between the initiatives (e.g. their background including the development stage) highlight the different ways in which PHM can be realized (see [Tables 2–5 for details](#)).

Ethics approval for this study was provided by Tilburg University (EC-2017-79). Purposive sampling was conducted to ensure diversity in initiatives' stakeholders, which ensured insight into a broad range of overarching perceptions and experiences. All contacted participants – i.e. CEOs from private sector organizations (4), practitioners include nurse and general practitioner (2), senior managers from e.g. health care insurer (1), health and social care providers (5), municipalities (2), initiatives' governance structures (4), non-profits (2), agreed to be interviewed (see [Tables 2–5 for further information](#)). In total, 20 stakeholders provided consent and were interviewed in 18 interviews – six participants from GEN-H, five participants from GM, five participants from VHCS and four participants from GK. Sixteen interviews were conducted via telephone and two interviews were conducted in person. A semi-structured interview guide was used to anchor the interview process (*available upon request*).

To ensure all different aspects that could influence PHM development were included in the guide, the CAHN theoretical framework was used which highlights the key components for PHM (i.e. relations, social forces, accountability, leadership, resources, finance, regulations, market) (Steenkamer *et al.*). All interviews were audio recorded and transcribed. Furthermore, in preparation, initiatives' websites and published papers concerning the initiatives were studied. In addition, participants from each of the case studies sent additional documentation providing further background information on the initiatives, thus further explaining participants' intervention logic. The documents included: three strategic plans (2014; 2017; 2018) from GEN-H, three strategic plans (2015; 2016; 2017) and memorandum of understanding (MoU) 2015 from GM, one evaluation report (2017), three strategic plans (initiation 2014; action 2015; innovation 2016,) and MoU 2013 from VHCS and two published case-study papers and two evaluation reports (2016; 2018) from GK.

2.2 Data extraction and data analysis of the interviews

Applying the realist evaluation approach, the authors constructed SCMO configurations from the interview transcripts in order to examine which PHM strategies, contextual factors and mechanisms influenced the PHM initiatives' development. After the initial drafting of the SCMO configurations, they were then discussed and refined within the research team through multiple rounds of feedback. Afterwards, the authors thematically clustered the SCMO configurations according to strategies and their outcomes, while examining the causal links between the underlying contextual factors and mechanisms – thus examining interviewees' experiences and perceptions and their own ideas of causation related to the development of their PHM initiatives. The thematically clustered SCMO configurations were then corroborated and supplemented with the retrieved documentation, which allowed the authors to more clearly understand and compare the contextual differences and explore how

Background and description	Overarching goals	Governance structure	Financial system	Key stakeholders
<p>(1) GM area (largely urban setting)</p> <ul style="list-style-type: none"> - One of the biggest United Kingdom economies - High long-term unemployment rates - Public sector deficit of circa £5m yearly - Significant health disparity rates <p>(2) Initiators: local authorities, National Health Service providers, health and social care commissioners</p> <p>(3) GM MoU* was signed in 2015 by all GM local authorities, Clinical Commissioning Groups and National Health Service England and set out the overarching vision, ambitions and processes for collaborative working between statutory services (e.g. National Health Service and social care providers), the voluntary community and social enterprise sector and wider public sector organizations like the police</p>	<p>(1) Decentralization through the devolution of powers and funds from central government down to Greater Manchester by 2020-2021</p> <p>(2) GM taking control of circa £60m yearly budget thereby reducing the yearly budget deficit</p> <p>(3) Greatest possible improvement to Manchester's health and well-being</p>	<p>(1) <i>GM-level structures:</i> GM governance and management structure, including the GM Combined Authority and the GM Health and Social Care Partnership</p> <p>(2) <i>Locality-level:</i> Each locality is establishing governance structures by implementing, e.g. single leadership structures, single commissioning structures at locality-level</p>	<p>(1) United Kingdom health system is based on the Beveridge model and is primarily financed through taxation</p> <p>(2) Currently separate health and care budgets</p>	<p>(1) GM Local Authorities</p> <p>(2) Health and social care commissioners</p> <p>(3) Public sector organisations</p> <p>(4) National regulators and assurance bodies</p>

Note(s): MoU: memorandum of understanding

Table 2.
Sample summary
Greater
Manchester (GM)

Table 3.
Sample summary
Vancouver Health City
Strategy (VHCS)

Background and description	Overarching goals	Governance structure	Financial system	Key stakeholders
(1) Vancouver city area (urban setting)	VCHS has 13 long-term goals to reach by 2025, which are centred on:	(1) VCH and the City of Vancouver	(1) The Canadian health system is based on a combination of the Bismarck and Beveridge model and is primarily financed through taxation	(1) VCM and VCH
(2) One of the largest economies and most expensive cities in Canada	(1) improving population health outcomes by improving e.g. housing, food, transportation, employment, education	(2) Leadership Table (not included in the MoU)	(2) Financial arrangements largely based on City funds and structures	(2) Public and non-profit sector organizations
(3) Significant health disparities	(2) Improving community capacity: resilience, social cohesion	In addition:		
(4) Initiator: VCM* (Social Policy department)	(3) Improving living environments: ecologically, economically and socially sustainable environments	(1) MoU steering Committee		
(5) VCM and VCH** the Health Authority, signed a MoU*** in 2013 aligning their vision, partnership principles and commitment to share data and resources	(4) Improving collaboration between the public, private and civic sector	(2) MoU working groups		
(6) The MoU partners brought in other public sector organizations and established the 30 member "Leadership Table". Based on consultations with international researchers, the Leadership Table and consultation with Vancouver residents, VHCS was developed		(3) VHCS integrated implementation team		

Note(s): *Vancouver city management. **Vancouver coastal health. ***memorandum of understanding

Background and description	Overarching goals	Governance structure	Financial system	Key stakeholders
<p>Greater Cincinnati area including part of Kentucky</p> <p>Large, industrialized area</p> <p>Significant health disparity rates</p> <p>Low population health outcomes due to e.g. substance misuse, housing instability, food insecurity, domestic violence</p> <p>Initiator: UWGC* non-profit organization improving community empowerment</p> <p>UWGC and The Health Collaborative (a non-profit data-driven health care improvement organization) led a broad coalition of community partners to improve communities' health based on what was known as the "Collective Impact Model"</p> <p>Initial efforts led to the development of a three-pronged vision for the region's: GEN-H</p>	<p>(1) Three overarching goals</p> <ul style="list-style-type: none"> -supporting local doctors in providing value-based comprehensive care to underserved populations by expanding technical assistance and quality improvement interventions in local health clinics -Connecting health care and social care providers to address vulnerable communities' social needs -Empowering neighbourhoods by supporting place-based care models and initiatives 	<p>GEN-H committee</p> <p>Primary care council</p> <p>Accountable Health community council</p> <p>Place-based health council</p>	<p>United States of America Health system is primarily funded through health insurance (both statutory, publicly funded and through employer provided insurance)</p>	<p>(1) The Health Collaborative</p> <p>(2) Public health, health and social care and community services</p> <p>(3) Business/financial sector organisations, e.g. regional banks</p>

Note(s): *United Way of Greater Cincinnati

Table 4.
Sample summary
Generation-Health
(GEN-H)

Table 5.
Sample summary
Gesundes
Kinzigal (GK)

Background and description	Overarching goals	Governance structure	Financial system	Key stakeholders
<p>(1) Kinzigal in South West Germany (largely rural setting) –Large proportion of low-income households and elderly residents with multiple chronic diseases</p> <p>(2) Initiator: the local physician network (GPs and specialists) MQNK**</p> <p>(3) In 2005, MQNK and Optimedis (a health management company specialized in managing integrated care) formed a legal entity called “Gesundes Kinzigal” (GmbH) enabling them to sign contracts with health care insurers and membership agreements with providers that wanted to become part of GK</p>	<p>Continuously working towards the Triple Aim</p>	<p>Four advisory councils, i.e.:</p> <p>(1) A patient board; (2) A patient ombudsman (3) A physicians’ board (4) A provider board representing local hospitals, nursing staff members, physiotherapy staff members and physicians</p>	<p>(1) German health system is based on the Bismarck model</p> <p>(2) The health system contains two types of health insurances, i.e –Public sickness fund –Private health insurances</p> <p>(3) Social care is largely financed out of local taxes and citizens themselves</p>	<p>(1) GK, GmbH, Optimedis</p> <p>(2) Health and social care providers</p> <p>(3) Healthcare insurers</p> <p>(4) Local businesses (e.g. fitness clubs)</p> <p>(5) Educational institutions</p>

Note(s): *General practitioners. **Medizinischen Qualitätsnetzes Ärzteinitiative *Kinzigal*

and why strategies were implemented within those contexts and how such changes triggered the corresponding mechanisms. Based on the thematic clusters, five initial program theories were formulated. The individual SCMO configurations therefore underpin each of the five overarching program theories.

The key features of the PHM initiatives are described in [Tables 2–5](#) and an overview of initiatives' initial contexts is available upon request. In the results section below, the initial program theories will be described (see [Tables 6–10](#)) (*an overview of all identified SCMOs is available upon request*).

3. Results

The following section describes per program theory how, according to the interviewees, PHM initiatives developed. The section below will compare the four initiatives per program theory, highlighting the different structures and strategies underpinning the initiatives and why these may work or not in certain contexts.

3.1 Create trust in a shared vision and understanding of the PHM rationale to establish stakeholders' commitment to the partnership

This initial program theory highlights the importance of investing in the “softer” aspects of PHM development, i.e. through facilitating trust in a shared vision and understanding of the underlying rationale of the initiative, in order to achieve commitment to the partnership. Initiatives' sense of urgency provided the initial momentum to enter into partnerships to improve population health outcomes (all 4), to address the socio-economic disparities (GM, VHCS, GEN-H) and environmental issues (VHCS) impacting health outcomes. In each of the initiatives, interviewees suggested that stakeholders' commitment to the partnership was based on trust in a shared vision and understanding of the rationale for the partnership (see [Table 6](#) for examples of SCMOs underpinning program theory 1). Comparing the four initiatives, the way trust and understanding were facilitated differed due to differences in initiatives' strategies and contextual factors. GEN-H and GK delegated the gaining of regional stakeholders' commitment to convening organizations to set out the regional vision and goals for the partnership. Whereas GM and VHCS introduced governance agreements based on a previously developed overarching vision and processes for collaborative working. However, GM and VHCS interviewees stated that governance agreements were not enough to secure commitment to the partnership (see [Table 6](#)). While GM and VHCS had both implemented a MoU, the MoU in VHCS was limited to the City and the Health Authority. This had a negative effect on the Leadership Table's commitment during the implementation phase, whereas they had been committed during the initial planning phase, as they had bought into the healthy city strategies' vision and goals because of the compelling narrative for change and collaboration. For GEN-H and GK, who did not have formal governance agreements to establish commitment to the partnership like the MoUs in GM and VHCS, stakeholders' co-creative interaction to come up with the best evidence-based model for change, was seen as an important enabling contextual factor in raising stakeholders' understanding e.g. regarding effective interventions.

3.2 Create shared ownership for achieving the initiatives' goals

Governance and management structures are required to achieve a sense of shared ownership. This initial program theory highlights the importance of underpinning a shared sense of ownership for achieving the partnerships' regional goals with governance and management structures that provide clear communication channels and clarity about roles and functions. All four initiatives were working towards regional responsibility supported

Table 6.
Initial program
theory 1

Strategy	Context	Mechanism	Outcome
GM ^I	Introduced MoU* Organizations within single governance structure are formally signed up through MoU, which contained a compelling vision History of collaborative working across organizations and sectors Close working relationships	Organizations having one joined-up conversation based on a compelling narrative for change and collaboration Generated trust in the partnership compared to those who had not travelled as far on the integration journey Generated trust in each other as if there were no winners or losers	Helped to commit and uphold MoU
VHCS ^{II}	Introduced MoU MoU was only signed by the City and the Health Authority without the other organizations brought together under the Leadership Table.	VHCS' vision was experienced as coherent and appealing	This was enough to ensure Leadership Table's commitment for the planning phase but not during the implementation phase
GEN-H ^{III}	Introduced a convening organization Convenor raised enough money to secure experts' buy-in and invited all community leaders to come up with effective long-term solutions for the region	The gap analysis raised awareness around what areas should be improved and that organizations' engagement was necessary to develop clear stakeholder roles	Commitment to the vision and goals surrounding a three-stepped approach
GK ^{III}	Introduced a convening organization Convenor developed a shared vision including (financial) incentives for change	Facilitated understanding of potential long-term shared savings' investment and to develop a culture of health	Commitment to the vision and a common set of strategies Providers hold 2/3 of the shares and convenor 1/3 (5–10% additional revenue)

Note(s): Create trust in a shared vision and understanding of the PHM rationale to establish stakeholders' commitment to the partnership. ^IGM: Greater Manchester; ^{II}VHCS: Vancouver Healthy City Strategy; ^{III}GEN-H: Generation Health; ^{III}GK: Gesundes Kinzigtal; ^{*MoU}: memorandum of understanding

Strategy	Context	Mechanism	Outcome
G ^M ^I	The overarching G ^M governance level organized single leadership – management structures on the locality level underpinned by MoU	Power was delegated along layered organizations' roles and responsibilities	Leaders understood their roles and due to the delegation of power, felt joint ownership for setting budgets
VHCS ^{II}	The City and Health Authority set VHCS goals-targets, with Leadership Table's buy-in, but no alignment across City departments Table unclear about roles and functions	Differences in departments' views triggered differences in ownership and interests Uncertainty prevented shared sense of ownership	Departments' budgets and work-planning were not integrated, which negatively influenced sense of shared responsibility Need for accountability framework
GEN-H ^{III}	Implemented convener	To counter each organization having its own set of goals and priorities, they felt shared ownership was necessary	Consensus regarding regional responsibility for GEN-H strategy
GK ^{III}	Organized an integrator role Convener kept insurance companies outside the network and took intermediary role between providers and payers	Enabled convener to get physicians to think at a more strategic level about population health needs	Physicians took regional accountability for population health needs not just costs Convener brought operational, management, financial expertise

Note(s): Create shared ownership for achieving the initiative's goals. ^IG^M: Greater Manchester; ^{II}VHCS: Vancouver Healthy City Strategy; ^{III}GEN-H: Generation Health; ^{III}GK: Gesundes Kinzigtal; *TA: Triple Aim

Table 7. Initial program theory 2

Table 8.
Initial program
theory 3

Strategy	Context	Mechanism	Outcome
G ^M ^I	Intended to secure additional private funding GM had the opportunity to mobilize a large economy of scale	Leaders driven by regional socio-economic factors, wanted to look at how localities could become sustainable by leveraging the economies of scale	This raised questions as to how to package socio-economic factors together at GM level, and how to go to market.
VHCS ^{II}	Pooling of budgets by lobbying different levels of government Organized People Public Private Partnerships Political pressure regarding the various City strategies due to the upcoming municipal elections Significant US corporate presence in region and on the Board	Wanting to reduce conflicting trade-offs in budgets and policy goals, VHCS investigated new alignment strategies The convener was increasingly interested in securing investments from business sector instead of through charities, i.e. to build a recurring revenue	City Council negotiations could lead to a city-wide holistic view, strategy and pooled budgets The biggest challenge was demonstrating the ROI to the region due to lack of knowledge
GEN-H ^{III}	Organized a ROI* and developed a payment model to gradually replace FFS** Positive convener's reputation	Convener wanted a ROI in order to reduce financial risks as they had staked their reputation to achieve financial sustainability	Per-patient per-quarter payment based on historic FFS values plus a 10% increase More patient-provider time, extra services for patients Less administrative tasks

Note(s): Create shared financial interest that reduces perceived financial risks in order to provide financial sustainability. ^IGM: Greater Manchester; ^{II}VHCS: Vancouver Healthy City Strategy; ^{III}GEN-H: Generation Health; ^{IV}GK: Gesundes Kinzigtal; ROI*: return on investment; FFS**: fee for service

	Strategy	Context	Mechanism	Outcome
G ^I	Delegated alignment and measurement of performance targets along governance structure on the locality level	Focussing on localities' core targets and how to measure them while resources are scarce	Required the locality to put their joint effort behind wanting to make the population level changes to secure their credibility	Implemented a shared data repository
VHCS ^{II}	Development of systems for learning, monitoring, measuring and information flows along governance structures	Lack of resources	Governance structures were felt to insufficiently ensure VHCS ^{II} credibility due to insufficiencies in the required data and learning structures to monitor and communicate initiatives' outcomes	Insufficiencies hindered keeping staff members and partners on board
GEN-H ^{III}	Organized a learning environment	Convener supported e.g.: (1) involving a health information exchange organization (2) planning and developing operating procedures in collaboration with stakeholders	Wanting to see results to secure their credibility, convener appreciated the time taken to build relationships as stakeholders felt like the convener understood and recognized the problems they were facing	Working with the technology team improved convener's credibility
GK ^{III}	Organized a learning environment	Implemented a compatible EHR* across all providers and learning facilities using feedback cycles. Resistance to EHR due to perceived lack of funding	Convener felt pressure to show GK's success as they had staked their reputation upon it	It took longer than expected to implement the shared EHR system to establish continuous improvements and to establish ROI ^{***}

Note(s): Create a learning environment to secure initiative's credibility. ^IG: Greater Manchester; ^{II}VHCS: Vancouver Healthy City Strategy; ^{III}GEN: H: Generation Health; ^{III}GK: Gesundes Kinzigtal; EHR*: Electronic Health Records system; ROI^{***}: return on investment

Table 9.
Initial program theory 4

Table 10.
Initial program
theory 5

Strategy	Context	Mechanism	Outcome
GM ^I Engaged citizens (e.g. public consultations)	Constrained timeframes, budgets and resources to bring in communities' voice on what is needed in localities	Localities and GM wanted to bring in "the community" voice to make stakeholders aware of people's needs and ensure the strategy resonated with the "real world"	But GM/localities were still searching for successful ways to engage communities at the governance level
VHCS ^{II} Promoted healthy lifestyles	In certain neighbourhoods, health campaigns were implemented	VHCS expected that such information made citizens more aware and knowledgeable consumers	Expectation was that this empowered citizens to lead healthier lifestyles
GEN-H ^{III} Cultivated a culture of health in priority neighbourhoods with committed community leaders, mini grants and coaching	Convenor organized learning collaboratives to equip communities to develop local solutions using data-driven approach	Awareness of overlap and gaps in services and that restructuring is necessary	Learning collaboratives developed community dashboards
GK ^{III} Implemented a learning environment	Implemented e.g. financial incentives for e.g. co-decision making and feedback cycles which incorporated accountability and peer control	Enabled sensemaking of how professionals were performing in comparison with their colleagues, what data were needed to make better decisions and facilitated awareness of why they should change their behaviour and what this meant for the way they were conducting their work	National advisory group is formed to advance research on learning collaboratives Enhanced awareness of prescription behaviour Introduction of shared decision-making

Note(s): Create citizens' and professionals' awareness for the required attitudes and behaviours. ^IGM: Greater Manchester; ^{II}VHCS: Vancouver Healthy City Strategy; ^{III}GEN-H: Generation Health; ^{IV}GK: Gesundes Kinzigtal

by structures and processes that motivate, sanction and incentivize adherence to agreed upon goals on a regional level (see [Table 2-5](#)). In all initiatives, the effectiveness of governance structures to embed stakeholders' responsibility was affected by a shared sense of ownership, which in turn influenced the extent to which stakeholders shared regional responsibility. However, bearing in mind that initiatives differed in the scale, scope and breadth of their aims, the form in which regional responsibility was embedded and underpinned by governance structures and management processes differed between initiatives. For instance, GM was implementing its PHM plans within the framework of devolving power from the UK National Government to Greater Manchester (decentralization), while GK did so within the framework of establishing accountable care. GM and VHCS had both delegated power along a layered governance structure (see [Table 7](#)). Whereas in GEN-H and GK the power to achieve regional responsibility for the TA was delegated to neutral and trusted convening organizations, which were known for their leadership, expertise and workforce capacity. Interviewees thought conveners would be able to engage stakeholders and knowledge institutions, raise ongoing funds, and ensure that funders' rules and guidelines would be properly followed. Furthermore, across the initiatives, different contextual factors played a role in triggering a shared sense of ownership and responsibility (see [Table 7](#)). In GM, the delegated power to the GM localities and clarity about roles and functions stipulated within the MoU encouraged a sense of ownership for sharing responsibility. In comparison, in VHCS the layered governance structures were placed under the City's purview. Despite stakeholders' enthusiasm for VHCS, some internal and external stakeholders doubted whether the City was the right driver to organize shared responsibility to further develop VHCS. For instance, within City management, the different departments saw VHCS either as an overarching strategy or as an additional strategy which could be leveraged to support the departments' separate and already existing agenda's (see [Table 7](#)). This uncertainty increased when VHCS transitioned from the planning phase to the implementation phase. Because the City had poorly marked and communicated this transition, there was disconnection within the Leadership Table and between the upper tiers of the VHCS structures and those doing the work. VHCS interviewees stated that this lack of leadership had led to their experienced lack of clarity in roles and responsibilities and had in their view highlighted the need for appropriate structures and processes that would link the governance structures, management and implementation processes and goals. In comparison, within GEN-H and GK, the convening organizations actively used the power, role and function delegated to them to organize regional responsibility.

3.3 Create shared financial interest that reduces perceived financial risks to provide financial sustainability

This initial program theory highlights the importance of establishing financial sustainability for place-based initiatives by implementing strategies that trigger a shared financial interest. Within the four initiatives, shared financial interests were based on organizations' desire to share or reduce financial risks or gain financial benefits. Each initiative aimed to better financially support the place-based models by: (1) securing additional funding (all initiatives) and aligning budgets across different financial systems (GM, GK, VHCS) and (2) developing alternative payment models (GK, GEN-H). While the alternative payment models were limited to the care sector, funding concerned the pooling of budgets across multiple sectors.

Firstly, initiatives tried to secure additional funding by applying for public funding from federal-national or state-, regional government agencies. In all cases, the funding was not enough to finance initiatives completely. Initiatives therefore also concentrated on gaining additional private funding through public-private partnerships. Contextual factors enabling

such partnerships included the mobilizing of the larger economies of scale (GM, VHCS), the corporate presence in the region (GM, VHCS, GEN-H) and private investors within the convening organizations themselves (GEN-H, GK) (see Table 8 for additional enabling contextual factors). For instance, not being able to leverage the larger economies of scale, GEN-H's convener instead used the strong Fortune 100 presence in the region, and the convener's positive reputation in Cincinnati to encourage regional leaders to invest in GEN-H's interventions not only through the charitable side but also through the business side. By attracting investments through the private sector, GEN-H hoped to build a recurring revenue. For instance, GEN-H was exploring the possibility of entering into a public private partnership to lower the costs of oncology care.

Secondly, GM and VHCS also tried to pool budgets across different financial systems. The pooling of budgets was not only intended to make it easier to shift or share resources across systems but also to encourage organizations to invest in each other for the benefit of the entire region and to improve everyone's capacity to deliver good quality care and support. Interviewees suggested that the success of this strategy may in part depend on whether leadership stimulated the alignment of budgets across the region. For instance, VHCS lobbied at different levels of government to pool policies and budgets, thus enabling health and care providers (and partners from other sectors, including e.g. the non-profit sector) to work more closely together to achieve the initiative's broad aims (see Table 8). Internally, the pooling of budgets across different municipal departments became a more visible issue with the upcoming municipal elections. VHCS was expected to be renewed, as were other citywide strategies such as the Greenest City Action Plan. City teams saw the benefit of aligning the different city strategies and were looking to integrate these strategies to reduce conflicting tradeoffs in budgets and policy goals.

In comparison, GEN-H and GK focussed on alternative payment models. The conveners' support for continuous improvements and the need to achieve a ROI in the public-private partnership investments in order to achieve financial stability, encouraged the initiatives to reduce financial risks. For instance, GK's interviewees said they had previously encouraged value-based activities, such as goal setting agreements between doctors and patients via add-on payments. Recently, they had started replacing the fee-for-service payment model for physician practices with a newly developed model that would provide a per-patient per-quarter payment. According to the interviewees, the new model simplifies payment and reduces the amount of administrative tasks for physicians', partly because it is supported by an evaluation and performance management system that included an Electronic Health Record system, management reviews and the peer reviewing of patient outcomes. Gradually implementing these strategies in a learning environment (see *initial program theory 4*) that provided insight into claims and Electronic Health Record data in combination with the convener's wish to establish efficiencies, i.e. in light of investments made by the convener, had according to GK's interviewees, ensured a ROI and the support of investments in and stability for the planning of health interventions.

3.4 Create a learning environment to secure initiative's credibility

This initial program theory highlights the importance of establishing continuous improvement cycles by creating a learning environment, i.e. the supportive structures and processes for training, measurement, monitoring and information flows. The initiatives aimed to use learning environments to showcase how initiatives were improving outcomes thus hoping to secure initiatives' and organizations' credibility. These continuous improvement cycles were used to support both the management and practice level. For example, in VHCS part of the data infrastructure that supported bylaws around urban (re) design was kept under the city's sphere of influence. GEN-H and GK's conveners introduced

training to support the professional level in using the Health Record System. Initiatives' strategies to create continuous improvements that secured initiatives' credibility differed (see Table 9). In addition, in all initiatives, the availability of resources (e.g. training facilities for professionals, expertise, capacity) in light of the scale, scope and aims of the initiatives were important contextual factors that influenced the development of continuous improvement cycles. Having a large scale and broad scope and aims, GM and VHCS delegated the establishment of continuous improvement cycles along the initiatives' governance structures (i.e. VHCS' leadership Table, MoU steering committee and integrated implementation team – GM localities). VHCS and GM interviewees stated they had insufficient resources to develop appropriate systems for training, monitoring and information and data flows across organizations. For example, according to VHCS interviewees, this made it harder for them to monitor and communicate the initiative's progress or to pinpoint where adjustments were required in order to achieve the initiative's goals. This in turn made interviewees feel that it was more difficult to secure the initiative's credibility. Compared to GM and VHCS, for GK and GEN-H the role and function of conveners as supporting organizations was the reason they were chosen in the first place (see also program theory 2). GK's and GEN-H's conveners made continuous improvement cycles a specific priority, partly because of their expertise in and capacity for data-management systems and in establishing learning collaboratives. Consequently, as conveners wanted to secure their credibility, by showing initiatives' success as soon as possible, they supported initiatives' data-driven approach, trained the implementation staff members and ensured funding guidelines were being followed.

3.5 Create citizens' and professionals' awareness of the required attitudes and behaviours

This initial program theory highlights the importance of investing in professionals' awareness regarding the need to collaborate across sectors (and with communities) and in citizens' awareness of, for instance, healthy lifestyles, to ultimately change behaviours and enable improvements in TA outcomes. The aim of investing in professionals' awareness was to change organizational cultures and to drive efficiencies in care delivery, while the aim of investing in citizens' awareness was to ensure citizens became more knowledgeable consumers of health services and communities' voices were better reflected within initiatives (see Table 10). Initiatives' strategies were aimed at changing attitudes and behaviour at both the community and the organizational levels. Interviewees suggested that various contextual factors enabled the process of sensemaking, such as interactions amongst stakeholders which entailed social pressure to change attitudes and behaviour (e.g. peer reviewing) or bringing in citizens' voices as a means of gaining an understanding of communities' needs (*all initiatives*), for example, GEN-H, VHCS and GM-enabled interaction between community groups, charities/non-profits and businesses. Interviewees thought this would make representatives of these different sectors more aware of their own responsibilities and highlighted the resources that could be brokered, shared and negotiated. As a result, initiatives identified overlap and gaps in services, which in turn opened up possibilities to change ways of working for instance from working as individual organizations for the community to working in co-creation with the community.

Furthermore, initiatives also pointed out strategies, which had been implemented with the aim of empowering patients and communities in order to improve communities' health and well-being. For example, GK, GEN-H and VHCS had actively invested in public campaigns on topics such as healthy eating, physical activity using the initiative as the platform for health and healthy communities. According to the interviewees, these events "empowered" people, as they, supposedly, became more knowledgeable consumers of health and care services.

4. Discussion

This explorative comparative case study investigated key features of four PHM initiatives in four different countries. Additionally, the study explored participants' experiences regarding the implemented PHM strategies and examined the contextual factors and mechanisms that influenced the outcomes of these strategies. The study identified five initial program theories important to the development of PHM, namely:

- (1) Create trust in a shared vision and understanding of the PHM rationale to establish stakeholders' commitment to the partnership;
- (2) Create shared ownership for achieving the initiative's goals;
- (3) Create shared financial interest that reduces perceived financial risks to provide financial sustainability;
- (4) Create a learning environment to secure initiative's credibility and
- (5) Create citizens' and professionals' awareness of the required attitudes and behaviours.

This is the first study to compare the implementation of four different international PHM initiatives and to understand the SCMOs underlying each program theory, i.e. the specific strategies employed in four international PHM initiatives and the conditions under which these strategies (were expected to) produce(d) certain (process) outcomes. Furthermore, the initial program theories also summarize interviewees' most important lessons learnt. While strategies and contextual factors differed between initiatives, the mechanisms underpinning the program theories were largely consistent across the internationally diverse initiatives. This suggests that the five mechanisms identified in this study could be universal and that these mechanisms will need to be triggered for the successful development of PHM, regardless of national context. The idea that these mechanisms are universal is supported by the mechanisms, which are very similar in nature, identified in a five-year research program which monitored the development of nine PHM initiatives in the Netherlands (Van Vooren, 2019).

This international study shows that it is important to secure commitment to the PHM initiatives' vision and goals (Towe *et al.*, 2016; Siegel *et al.*, 2018; Mongeon *et al.*, 2017). To enable such commitment, more formal top-down enforcement of commitment through e.g. MoUs, is not enough to ensure such commitment (Ovseiko *et al.*, 2014; Siegel *et al.*, 2018). A bottom-up approach focussing more on garnering stakeholders' insight into the value of committing to the partnerships' vision and goals is important as well. Our study, in line with the previous literature, highlights that creating a sense of urgency amongst stakeholders is an important factor in garnering stakeholders' commitment (Van Vooren, 2019). Furthermore, the study shows the different ways in which policymakers could stimulate and invest in PHM. Relatedly, the same bottom-up and top-down principle also seems to apply to initiatives seeking to establish regional responsibility for the transformation to PHM initiatives. Increasingly, different countries and national and regional governments stress the need for such transformations. However, how organisations from different sectors should collaboratively take regional responsibility for this transformation remains unclear, specifically what type of care needs to be organized at which level (i.e. national, regional, local) and who can best lead initiatives (Drewes *et al.*, 2018). Our study suggests that an important risk regarding the devolution of powers to newly delegated governance structures involves merely moving fragmentation from the national level to the regional/local level, especially if stakeholders do not solve the original fragmentation issues during the devolution process. While the risk of a gradual approach to achieving cross-sector accountable care lies

in the difficulty of implementing changes beyond the (health)care sector and for each sector to embrace the ethos of wider determinants of health.

In addition to earlier studies, this study explored how initiatives hoped to improve financial sustainability over longer periods of time with a range of new financial approaches (Song *et al.*, 2014; Lewis *et al.*, 2017). For example, the trusted conveners in this study were willing to take responsibility for the financial risks by financing health services. Many initiatives are exploring private investments to build recurring revenues (Van Vooren, 2019; Mongeon *et al.*, 2017). In the Netherlands for instance, the government has set up a government investment bank called Invest-NL, which aims to financially support and stimulate societal transitions (e.g. towards green energy, efficient health and care, innovative education) (Wiebes *et al.*, 2018). The government wanted to avoid investments made by private investors in PHM initiatives to avoid private investors' influence on stakeholders' behaviour and thus initiative's development (Wiebes, 2018). Further research is necessary to investigate if and how public-private partnerships could be of value and what the consequences would be. The study also showed how initiatives tried to leverage enabling political developments and to mitigate constraining political developments. The need that this study's initiatives had for regional-national policy-department partnerships to establish collective policy and funding efforts, is in line with the previous literature which emphasized the importance of the pursuit of health and well-being through "whole-of-society" approaches as well as "whole-of-government" approaches (Browne *et al.*, 2017; De Leeuw *et al.*, 2014). This international study also showed that shifts in national and regional governments' politics and priorities regarding the public sector more broadly, and the PHM initiatives specifically, can have a significant impact on initiatives' sustainability. For instance, some of this study's UK interviewees suggested the UK government's attention had shifted from devolution to Brexit (the term used to describe the process of the UK exiting the European Union). They anticipated this could make it harder for GM to receive financial and policy support from Westminster. Some participants had also expressed concerns that Brexit, instigated at the national level, might affect the size of the regional workforce available to support the new models. Comparatively, the US interviewees mentioned that despite the expectation that the new federal government might want to invest less in public sector infrastructure and might want to repeal the obama era affordable care act (ACA), the state level government would continue to support the initiative regardless of the different direction they expected the federal government to take. In an effort to safeguard initiatives from such national trends, and to continue improving regional accountability, interviewees mentioned they were exploring the potential of leveraging communities' support for addressing the wider determinants of health. Though community engagement is increasingly seen as a key component of place-based models (De Weger *et al.*, 2018) – with the assumption that involving communities can help ensure services are more tailored to their needs – the four initiatives remained unsure of how to engage communities more meaningfully.

Interestingly, throughout the program theories, the scale, scope and breadth of initiatives' aims seemed to be linked to who initiated the PHM initiatives and the key stakeholders, which in turn influenced how PHM initiatives developed, e.g. the form in which regional responsibility was embedded and underpinned by governance structures and management processes. A relatively large region with a high population number, broad scope and underlying aims tentatively seems associated with the involvement of government authorities and a larger number of stakeholders, in comparison to PHM initiatives where providers were key initiators.

4.1 Limitations

This study was exploratory in nature and investigated stakeholders' experiences and perceptions of the development and implementation of four PHM initiatives from four

different countries. Despite this limited number, the included initiatives ensured a broad representation of PHM as they excelled in one or more of the characteristics necessary for the development of PHM. In addition, because results depend on which stakeholders were interviewed, this study has not only included initiatives' senior-level representatives and key stakeholders but also ensured a broad representation of the different sectors.

4.2 Future research

As far as the authors are aware, this is the first internationally comparative study to investigate the SCMOs underlying PHM development. This explorative study has provided insight into the initial program theories and underlying strategies, contextual factors, mechanisms and process outcomes of large-system transformations. To refine these program theories and improve our understanding of PHM initiatives further, longitudinal studies could be carried out, which would include different stakeholders' perceptions and experiences at all levels of PHM initiatives. Such a study could also test whether expected outcomes highlighted above (e.g. empowering citizens by health campaigns is expected to contribute to healthier lifestyles) were indeed achieved.

Furthermore, to deepen our understanding, future studies could examine which strategies within the five program theories should be implemented in the different PHM's developmental phases (Erickson *et al.*, 2017), to ensure PHM initiatives' successful development. Additionally, studies should investigate if and how initiators influence organizational processes, cultures and stakeholders' behaviours. Future studies are needed to further explore and confirm this potential finding. Furthermore, PHM initiatives increasingly seem to be emblematic of trends towards regionalization and decentralization. As the findings seem to suggest that the development of PHM initiatives is influenced by who initiates the initiatives, future research could investigate how much power and funding should be passed down from national governments down to the local-level and which roles and functions should remain at the national level and which roles could be taken up by regional or local governments. Furthermore, future studies could explore how local areas should use regional accountabilities and powers and how such initiatives could be better incentivized by policies that fully support cross-sector collaboration in order for place-based initiatives to address the wider determinants of health.

5. Conclusions

The study highlighted five initial program theories and described the underlying conditions which influenced the development of four international PHM initiatives. These program theories and the underlying contextual factors and mechanisms indicate important lessons learnt for policymakers and program managers to bear in mind when developing PHM initiatives. It is important for future studies to keep providing insight into the development of PHM initiatives in order to better understand which PHM strategies need to be implemented and what contextual factors and mechanisms need to be triggered.

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