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Scoping of models to support population-based regional health planning and management: comparison with the regional operating model in Victoria, Australia

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Abstract

Objective The aim of the present study was to try to understand the breadth and comprehensiveness of a regional operating model (ROM) developed within the Victorian Department of Health's North West Metropolitan Region office in Melbourne, Australia.

Methods A published literature search was conducted, with additional website scanning, snowballing technique and expert consultation, to identify existing operating models. An analytical grid was developed covering 16 components to evaluate the models and assess the exhaustiveness of the ROM.

Results From the 34 documents scoped, 10 models were identified to act as a direct comparator to the ROM. These concerned models from Australia ($n = 5$) and other comparable countries (Canada, UK). The ROM was among the most exhaustive models, covering 13 of 16 components. It was one of the few models that included intersectoral actions and levers of influence. However, some models identified more precisely the planning tools, prioritisation criteria and steps, and the allocation mechanisms.

Conclusions The review finds that the ROM appears to provide a wide coverage of aspects of planning and integrates into a single model some of the distinctive elements of the other models scoped.

What is known about the topic? Various jurisdictions are moving towards a population-based approach to manage public services with regard to the provision of individual medical and social care. Various models have been proposed to guide the planning of services from a population health perspective.

What does this paper add? This paper assesses the coverage of attributes of operating models supporting a population health planning approach to the management of services at the regional or local level. It provides a scoping of current models proposed to organise activities to ensure an integrated approach to the provision of services and compares the scoped models to a model recently implemented in Victoria, Australia.

What are the implications for practitioners? This paper highlights the relative paucity of operating models describing in concrete terms how to manage medical and social services from a population perspective and encourages organisations

that are accountable for securing population health to clearly articulate their own operating model. It outlines strengths and potential gaps in current models.

Additional keywords: population health approach.

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Introduction

Healthcare systems around the world are attempting to manage various challenges related to the aging of their populations, rising chronic illnesses and multimorbidity, in addition to rising costs.[1,2] It has been recognised that systems are not well integrated, there is duplication and waste throughout the service platforms and ways are needed to reverse these trends.[3–5] This has led them to focus on better service integration and more targeted healthcare to those who most need it. Policy makers increasingly realise that if the health sector better meets the needs of the population, they may achieve better health outcomes and increase cost-effectiveness. Hence, the interest in population health planning and better-targeted commissioning of services.

In many healthcare systems there is a growing recognition that individual health and well being is determined by complex interactions between healthcare, environment and social contexts.[6,7] Governments realise that achieving healthy communities requires better integration between healthcare, the environment and social systems.[8–11] Reform of health systems and the shifts, in particular, to integrating population health approaches has been to the fore of recent policy and academic literature.[12–14] Population health as a field of study seeks to identify why some populations are healthier than others and to promote thinking about what can be done to make health outcomes more equitable.[13,15] As Keleher notes, population health 'is about determinants of health among populations and their characteristics. Effective population health planning is grounded in a social determinants model, and puts equity outcomes central to its goals'.[16]

Internationally, there have been several initiatives to facilitate the development of healthcare delivery systems that meet the needs of the population they serve rather than operate purely on a service model.[17–21] Examples are the formation of Accountable Healthcare Organisations (ACOs) in the US, in which groups of providers take responsibility for improving the overall health status, efficiency of healthcare delivery and healthcare experience for a defined population,[22,23] and the Clinical Commissioning Groups (CCGs) in England, which are clinically led statutory National Health Service (NHS) bodies responsible for the planning and commissioning of healthcare services that meet the documented needs of their local area (NHS England).[24] Central to these developments is the need for reliable data sources, both quantitative and qualitative, that provide service planners with the information required to make decisions about which services to commission.[21,25–27]

As part of a reform implemented in 2009, the Victorian Department of Health established eight regional offices to deliver an array of devolved functions and programs that include: program planning, development and implementation; performance management; service system development; and stakeholder relationship management. These regional offices were responsible for surveillance and improvement of the health and well being status of the residents of their region. During 2010, the North West Metropolitan Region (NWMR), through a series of activities, developed a framework to guide health services planning towards a more population-based approach: a regional operating model (ROM). The broad objectives of this model were to provide a basis to focus staff efforts on strategic goals, to serve as a unifier of the regional strategy, to highlight the complementarities and uniqueness of the region's programs and to provide a basis for developing specific achievement-based goals and activities for programs, teams and individuals. Such operating models can be broadly defined as outlining the organisational structure and mechanisms adopted to produce services. In line with this definition, a key feature of the ROM was to rearrange streams of activity using an integrated perspective whereby regional planners and contract managers oversaw the entire range of funding streams for a defined local geographical area rather than their previous siloed programmatic responsibilities around a content area, such as mental health. In addition, the ROM clearly stated that allocation decisions and managerial oversight must take into account population needs and overall intersectoral activities in the management of health services.

In order to further the development of the operating model and develop a sound understanding of its potential and strengths, the NWMR funded an evaluation of the framework with regard to its validity and relevance.[27] The present study is concerned with one aspect of this evaluation focusing on the content validity of the ROM. This aim of the present study was to compare the ROM with other models in the field of regional population health planning and to assess its breadth and scope.

Methods

In 2012, we scoped models by conducting a search of the published literature (PubMed, CINHAL and Web of Science), website scanning and snowballing technique (using Google Scholar for academic journals and referring to publications from health agencies or departments, such as the NHS and World Health Organization (WHO)). Key words were defined by the research team to aid in identifying the most relevant data sources. International experts in the field of population health planning ($n = 7$) were identified using the current knowledge of the researchers and the project control group. These experts were consulted as a source to help identify further relevant models that had not been published.

An analytical grid (Table 1) was developed by the research team to assist in selecting documents for inclusion, extracting information from selected models and comparing and contrasting them with the ROM. This analytical grid was based on the

Table 1. Analytical grid

Components	Criteria
Statement of aims and objectives	Does the model have clearly described aims and objectives?
Covered sectors	These represent different areas of healthcare and social services delivery
Aged care	Care for older adults, which can include care provided to support living in the home and care in residential as well as long-term care facilities
Acute care	Includes secondary healthcare where patients receive short-term treatment for an urgent medical condition, injury or episode of illness, or following surgery; acute care can be provided on an admitted or ambulatory basis
Public health services	Include services of health promotion, screening and preventive services, as well as health protection (infectious diseases and environmental protection)
Primary care services	Include care provided by medical providers or nurse practitioners for comprehensive first contact and continuing care for people with any undiagnosed sign, symptom or health concern, not limited by problem origin, organ system or diagnosis
Rehabilitation and extended care	Include prolonged periods of medical, nursing or custodial treatments aiming to facilitate the recovery process from injury, illness or disease
Other	Includes any other form of care not specified previously
Whole-of-system integration	Includes processes or structures aiming at bringing together the component subsystems and ensuring that they function together as a single system
Individualised service provision	Describes the fact that the model covers services provided to individuals
Intersectoral action	Refers to actions influencing health outcomes that are undertaken by sectors outside the health sector in collaboration with the health sector
Regionalised service planning	Describes the presence of a function to plan the delivery of services on a regional basis
Population health approach	An approach to service planning that aims to improve the health of the population and to reduce inequities between groups through an assessment of population needs and an integrated prioritisation process including curative and preventive approaches
Monitoring and evaluation	Explicit activities aiming to monitor health indicators and service delivery effects through evaluation of population health trends
Identified levers of influence	Clearly stated mechanisms by which the model would influence planning processes and service delivery
Internal stakeholder engagement mechanisms	The process by which an organisation involves their own staff and managers who may be affected by policies and managerial decisions or can influence the implementation of organisational policies
External stakeholder engagement mechanisms	The process by which an organisation involves external partners and groups who may be affected by policies and managerial decisions or can influence their implementation in communities

literature around operating models and integrated planning framework and focused on strategic (e.g. mission, roles), tactical (e.g. target populations sector), operational (e.g. governance structure, monitoring) and contextual (e.g. engagement, communication) aspects.[21,28–33] The grid aimed to draw out the dimensions, subdimensions and categories common to each model, as well as highlighting potential strengths and gaps in the ROM.

The present study received ethics approval from The University of Melbourne Research and Ethics Committee.

Results

A total of 34 relevant documents published in various forms (journal articles, reports, strategic plans, summary documents and unpublished reports) were identified following the literature search and expert consultation. Many of the documents retrieved were health agencies' strategic plans that provided no specific details on operational aspects or any detailed information on the organisation, governance or specific regional focus. Although none of the documents was specifically reporting on an operating model, 10 documents[34–43] contained reference to a model for health planning that was of direct relevance to the ROM. These included five Australian models,[34–38] four models[39–42] from the UK and one model[43] from Canada. These 10 models were used as the comparator models for this evaluation (Table 2).

No single model contained all 16 components as listed in Table 2. Most of the models (nine of 11) included at least 10 of the 16 components, yet there were variations in coverage. The dimensions that were most likely to be included were statements about aims and objectives, description of public health services sector involvement and internal and external engagement in the planning and operating processes. ROM is among the most exhaustive models, covering 13 components, along with the Victorian Department of Health's Prevention Community Model (PCM) and the Québec Population Health approach adopted in Quebec (PHQ), both of which covered 14 components (Table 3). The ROM differed from the Victorian PCM and Québec PHQ by not including the dimensions of monitoring and evaluation, or external stakeholder engagement mechanisms.

Ten models had a focus on internal engagement strategies, such as up-skilling of staff, training and information sessions. External engagement strategies, such as consultation processes and service planning processes, were included, with varying levels of details, in nine models. The least covered component related to intersectoral actions. Only seven models incorporated a regionalised service planning and a whole-of-system integration perspective. Few models outlined a broad range of sectors to be influenced and the levers to be mobilised to influence them.

Table 2. Models included for comparative analysis with the regional operating model (ROM)
NHS, National Health Service

Acronym	Model
Australia	
SASP	The South Australia 2008 Strategic Plan (SASP) for the period 2008–10[34] had a specific focus on partnerships (strategic enablers), including the ability for community participation in identifying issues, developing programs and policies and evaluating their impact supporting stakeholder's involvement in the development of regulations and the implementation of legislative change and a focus on building the capacity of organisations for improving public health outcomes.
PCM	The 2011 Victorian Department of Health's Prevention Community Model (PCM)[35] comprises several key features, including a focus on prevention delivered to where people actually live their lives, in schools, in workplaces and in local communities; a dynamic systems approach to replace traditional disconnected program-by-program approaches; prevention delivered through community consortiums led by local government and supported by community health; planned resource distribution based on community needs to maximise effectiveness and the deployment of the right kinds of programs in the right places; a specific-purpose business model, with a delivery platform dedicated to prevention rather than fragmented efforts as afterthoughts to other service priorities; and creation of a unified funding and accountability approach with collective outputs that all contribute to shared Victorian population preventive health outcomes.
QHP	The Queensland State Wide Health Services Plan 2007–2012 (QHP)[36] articulates that health services are provided across a health continuum addressing the needs of all people from the well population to individuals with acute and chronic conditions. Services delivered across this health continuum can be categorised into five program areas (prevention, promotion, protection; primary healthcare; ambulatory care; acute care; and rehabilitation and extended care). All the work undertaken by Queensland Health's population health function aligns with the Prevention, Promotion and Protection Program. This model aimed to enhance relationship with Divisions of General Practice for effective collaboration through active participation in Primary Healthcare Partnership Councils at state, area and local levels for a clear understanding of roles, responsibilities and complementary actions.
NPHP	A Planning Framework for Public Health Practice (NPHP)[37] was a tool to improve planning and management in public health. It complements existing planning processes in public health and draws them together under a common, over-arching approach. The framework is not a new definition of public health, but a method for continually defining and reviewing what public health does.
NSWHG	The New South Wales Area Healthcare Services Plan (NSWHG) centred on planning and service delivery in response to health needs of a defined population.[38]
UK	
LTC	Supporting People with Long-Term Conditions – The NHS and Social Care model (LTC)[39] is a blueprint to support NHS and social care organisations in improving local services for people in long-term conditions. It draws on learning from US models, such as Evercare and Kaiser Permanente, but the vales and structures of the NHS are different. Therefore, the model reflects the strengths of the existing infrastructures and services.
GMA	Manchester City Region Total Place (GMA)[40] is an initiative that looks at how a 'whole-area' approach to public services can lead to better services at less cost. It seeks to identify and avoid overlap and duplication between organisations, delivering a change in both service improvement and efficiency at the local level.
PHE	Public Health England's Operating Model (PHE)[41] includes three fundamental structural operating elements: (1) a national office including national centres of expertise and four hubs that oversee its locally facing services; (2) units that deliver its locally facing services and act in support of local authorities, other organisations and the public in their area; and (3) a distributed network for some functions, including information and intelligence, and quality assurance functions to allow them to be located alongside the NHS and academic partners.
NHSGGC	NHS of Greater Glasgow and Clyde Corporate Plan for 2013–2016 (NHSGGC) included an operating model component outlining structural elements that would drive activity across the organisation.[42]
Canada	
PHQ	In 2003, the Quebec government undertook a major reorganisation of its health network. As part of the Population Health approach adopted in Quebec (PHQ),[43] regional boards were renamed health and social services agencies (Agences de santé et de services sociaux, or ASSS) and their mandate was redefined to support the development of local service networks on a geographical basis while continuing to allocate funds to hospitals in their regions. Although local community service centres were partly responsible for providing the bulk of direct services to the population on a local level, the new reform added a further responsibility to develop local public health plans. The recent reorganisation has introduced the mandate of population-based responsibility to a new health organisation, the Centre de santé et des services sociaux (CSSS), representing the merger of acute care and long-term care hospitals with local community health centres.

With regard to specific sectors covered by the various regional planning models included, public health services and primary care are the most commonly covered, followed by acute, aged and rehabilitation and extended care.

The ROM covers some components that are less often addressed in other models. Intersectoral actions were only described in four models, with the ROM being the only Australian model including this dimension. Furthermore, the ROM describes levers of influence, which were only covered in five other models. However, some models identified more precisely the planning tools, prioritisation criteria and steps, the allocation mechanisms, such as the Planning Framework for Public Health Practice (NPHP) and the Public Health England's Operating Model (PHE). Others, such as the PHQ, provided a better description of the context into which the organisation evolves and the relationship that it maintains with various stakeholders and policy levels. Finally, some models identified the roles of the patients and population and positioned them

Table 3. Coverage of components by models

ROM, regional operating model; NSWHG, New South Wales Area Healthcare Services Plan; NPHP, Planning Framework for Public Health Practice; PCM, Prevention Community Model; SASP, South Australia 2008 Strategic Plan; QHP, Queensland State Wide Health Services Plan 2007–2012; GMA, Manchester City Region Total Place; PHE, Public Health England's Operating Model; LTC, Supporting People with Long-Term Conditions – The NHS and Social Care model; NHSGGC, NHS of Greater Glasgow and Clyde Corporate Plan for 2013–2016; PHQ, Population Health approach adopted in Quebec

			Australia						UK		Canada	Total no. models
	ROM[28]	NSWHG[38]	NPHP[37]	PCM[35]	SASP[34]	QHP[36]	GMA[40]	PHE[41]	LTC[39]	NHSGGC[42]	PHQ[43]	
Statement of aims and objectives	✖		✖	✖	✖	✖	✖	✖	✖	✖	✖	10
Covered sectors												
Aged care	✖	✖		✖	✖	✖			✖	✖	✖	8
Acute care	✖	✖		✖	✖	✖			✖	✖	✖	8
Public health services	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	11
Primary care services	✖	✖		✖	✖	✖	✖		✖	✖	✖	9
Rehabilitation and extended care	✖	✖		✖	✖	✖			✖	✖	✖	8
Other				✖	✖	✖	✖			✖		5
Whole-of-system integration	✖			✖			✖	✖	✖	✖	✖	7
Individualised service provision	✖	✖		✖	✖	✖			✖	✖	✖	8
Intersectoral action	✖						✖	✖			✖	4
Regionalised service planning	✖	✖			✖		✖	✖		✖	✖	7
Population health approach	✖	✖		✖	✖		✖	✖		✖	✖	8
Monitoring and evaluation			✖	✖	✖	✖	✖					5
Identified levers of influence	✖	✖		✖			✖	✖			✖	6
Internal stakeholder engagement mechanisms	✖	✖		✖	✖	✖	✖	✖	✖	✖	✖	10
External stakeholder engagement mechanisms		✖		✖	✖	✖	✖	✖	✖	✖	✖	9
Total no. components	13	11	3	14	13	11	12	9	10	13	14	

at the centre of the model. This was the case of the Manchester City Region Total Place (GMA) and the NHS of Greater Glasgow and Clyde Corporate Plan (NHSGGC).

Discussion

It is widely recognised that achieving healthy communities requires better integration between healthcare, the environment and social systems.[44–47] A Canadian study showed that most regional health authorities do include improving population health and health equity in their mission and vision.[48] However, when it comes to a system-wide effort with diverse partnerships to address medical and non-medical determinants of health, most organisations are struggling to operationalise these concepts.[49]

The present scoping review identified a range of dimensions that have been incorporated into operating models aimed at supporting the integration of population health perspectives into system planning and contractual management at the regional level. Ten models were identified that could be compared with the ROM developed in Victoria, Australia. The models scoped came from various jurisdictions, both from Australia and other highly industrialised countries (Canada and the UK).

The fact that we only found 10 operating models in addition to the ROM despite the extensive search we conducted suggests that not many organisations explicitly state and make public the frameworks they use to guide their operations and the activities they adopt to achieve their mandate. Numerous strategic plans and priority statements can be found in the grey literature and in various websites of organisations. However, clear statements and an outline about how these organisations intend to operate to achieve their goals remain scant. This aspect alone distinguishes the Regional Operating Model (ROM) adopted in Victoria. It is among the few stated models describing not just what the strategic orientations or the intended programs of activities are, but actually how to structure services, manage organisational processes and operate in order to provide the planned services and activities.

Many elements found in Victorian ROM were also clearly prioritised in the other models included in our analysis. Stating the aims and objectives of the organisation was certainly the most common. In addition, some specific orientations embedded in the ROM approach were part of many innovative models scoped through this work. Adopting a whole-population approach, identifying a continuum of interventions ranging from healthy population to people with complex conditions, an intersectoral focus on health determinants, a needs-based approach and a coordination role to funnel the various stakeholder interventions supporting population health were all identified frequently. These aspects relate strongly to dimensions often cited in documents highlighting a population health approach to planning in health organisations.[14] However, although the ROM definitely aims at integrating intersectoral action and individualised service delivery, many models do not adopt such a broad mandate. Kindig and Isham highlighted the fact that no single entity can be held accountable for achieving population health goals in light of the various factors influencing it.[50]

The lack of identified levers, mechanisms, criteria and structural organisation characteristics highlights the challenges related to developing an operating model that can be concise enough to serve as a mobilisation tool and detailed enough to streamline activities in the new directions outlined in the model. This does not mean that the policy makers or authorities developing these models did not select and use such tools; it simply shows how difficult it can be to go to such a level of operational detail in a model. Nonetheless, the fact that several models identified some operational planning and management tools highlights the potential to add to ROM some more information about the tools and processes put in place to guide the organisation's activities and processes. This could also ensure going beyond the rhetoric of the model (e.g. planning according to a population's needs) by actually detailing the meaning in concrete terms.

To a certain extent, ROM seems to be integrating into a single model some of the distinctive elements of the other models scoped. This is also the case in the Quebec and Glasgow models,[42,43] where population health planning approaches have been in development over the past decade. ROM combines strategic, tactical and operational planning perspectives. However, ROM goes further by combining a population health approach and a system integration approach in the same framework. Few models among those retrieved in the present scoping exercise have adopted both these perspectives. In fact, the Quebec model,[43] representing a full integration of public health and curative care planning, is the one the closest to ROM in this regard, where elements of health promotion and prevention are integrated through the continuum of care and support services. The innovative nature of ROM lies in the fact that such an integrated view comes from an organisation that manages services and contracts at a level, the regional level, where such an integration approach is expected. Only the Glasgow and the Manchester[40,42] approaches were also at the regional level. All other models were developed at the national or state level, although some were designed to provide the locus of integrated planning at the regional, and even the local, level.

This scoping adopted a mixed-method approach to try to capture a poorly studied area of health system management. Complementing a literature search of published academic papers with a grey literature search and experts interviews enabled us to identify a subset of models addressing the issue of planning health and social services from an integrated population health perspective at the regional level. More specifically, the present study is among the first to synthesise how regional authorities can adopt a model to conduct their planning and management activities to support a more integrated approach.

However, the present scoping of models has some limitations. Although our search was extensive, we could not, with the allocated time and level of resources in this evaluation, provide a full scoping of unpublished models. Various organisations may have operating models without publishing them or making them available on their website. Only by contacting the various jurisdictions could such a scoping be done. However, given the very large number of regional-level organisations in countries comparable to the Australian context, such a full scoping would not be realistic as part of a rapid evaluation. However, we did manage to retrieve models from the various Australian states and are confident that we have covered the most salient models from this context. Thus, the various international models scoped can provide a complimentary view of things in a context of exhaustive scoping of Australian models.

Conclusion

Healthcare systems around the world are attempting to manage various challenges related to the aging of their populations, rising chronic illnesses and multimorbidity in addition to rising costs. The present study found that explicit frameworks to guide the operationalisation of population health plans are few and that the ROM developed in Victoria, Australia, provides an example that will be of use to others that manage services and contracts at a regional level, where such an integration approach is expected. Given the current lack of operating models found in the present mixed-method review, there would be strong benefits for organisations with population health responsibilities to articulate their policy, strategy, tactics and operational issues in a coherent manner in order to identify conflicts and tensions and to refine intersectoral action.

Competing interests

None declared.

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