Bwrdd Iechyd Prifysgol
Cwm Taf Morgannwg
University Health Board

CTM Building Healthier Communities: International Evidence

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1. International Exemplars

Health and care systems internationally are grappling with the same pressures now evident across Cwm Taf Morgannwg University Health Board (CTM): changing population needs, rising complexity, persistent health inequalities, constrained workforce capacity and growing demand for urgent and hospital-based care. These pressures cannot be met sustainably by adding hospital capacity alone. Reform programmes are working to prevent avoidable ill health, identify need earlier, strengthen care within communities and build continuity between primary, community, social and specialist services. This direction reflects a wider international movement towards integrated, people-centred care, although how it is translated and implemented into practice varies considerably between systems.[1]

This international exemplar review was undertaken to understand how different systems have approached that challenge, and what their experience could contribute to CTM's Future Vision. It considers models operating at several levels, from national reform programmes and regional integrated-care systems to locality, neighbourhood and community-led approaches. The breadth is deliberate. CTM's ambition depends on action at more than one level at once: coherent direction, infrastructure and specialist capability across the Health Board; coordinated planning and delivery for defined locality populations; and flexible, relationship-based responses shaped around the circumstances and assets of individual communities.

The review therefore looks beyond the formal structure of each system to how care is intended to work in practice. It pays particular attention to how models organise services around defined populations and places; connect prevention, primary care, community services, social care, and hospital provision; identify and respond to risk before needs escalate; and extend assessment, diagnostics, treatment, and recovery beyond traditional hospital settings. It also identifies how people enter and navigate each model, where responsibility for coordinating care sits, and how continuity is maintained as people move between services. These are the same capabilities the Bonsai model sets out, and the exemplars are read with that model in mind.

1.1 Scope and selection of exemplars

The aim of the review is not to find a single international model for CTM to reproduce. Each exemplar has developed within its own policy, funding, governance and cultural environment, workforce, geography, population density, local government responsibilities and the maturity of existing services all shape how a model works and what it can achieve. A similar population size may make an exemplar more relevant, but it does not by itself make a model transferable.

The review instead seeks the underlying design choices, care capabilities and enabling conditions that could be relevant to CTM. That means looking not only at the visible configuration of services, but at the workforce, digital, data, governance, funding,

[1] https://www.who.int/health-topics/integrated-people-centered-care

infrastructure and improvement activities that allow those services to operate as a connected system.

A broad international landscape was considered, spanning whole-system reform, population-accountable partnerships, regional integration, hospital and community collaboration and neighbourhood-based delivery.

It was tested against eight selection lenses:

1. relevance to CTM's case for change
2. coverage of the care continuum
3. population scale and comparability
4. place and hyperlocal relevance
5. system breadth
6. evidence and maturity
7. transferability, and distinctive contribution, and
8. distinctive contribution

Five geographies were selected for detailed profiles, Ireland, Singapore, Brazil, Ontario and New Zealand, while six further models were retained as focused practice spotlights. The selected systems differ in how they are funded, with a mix of public and private funding. The review draws on the operating principles of each system, focusing on how care is organised and delivered rather than on the way it is financed.

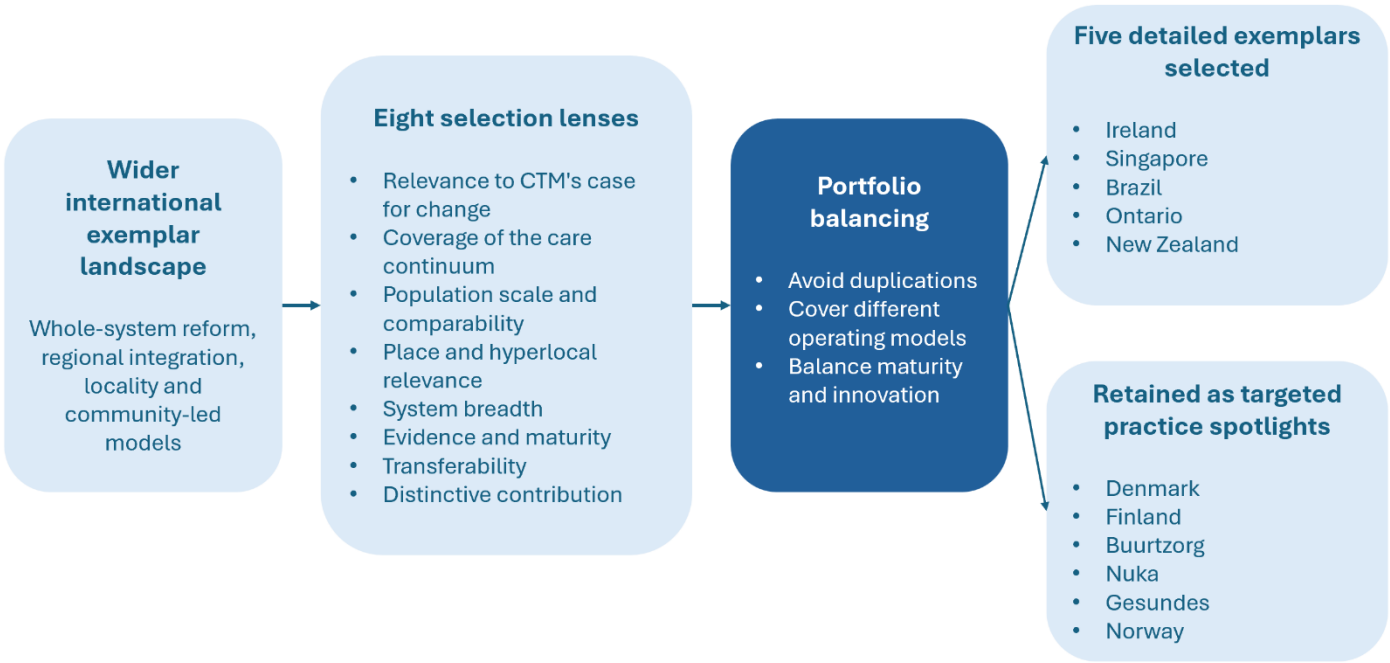


Figure 1.1.1. From the wider landscape to the five detailed exemplars

Each exemplar is examined as a named programme rather than as a whole health system. The five are summarised below, together with the distinctive contribution each offers, its relevance to CTM's primary, community and acute services, and the period over which it has developed.

Selection Criteria	Ireland	Brazil	Singapore	New Zealand	Ontario (Canada)
Relevance to CTM's case for change	Care closer to home and stronger community capacity	Population responsibility and proactive community outreach	Prevention, early intervention and primary care continuity	Integrated pathways, demand management and community prevention	Population responsibility and connected primary care
Coverage of the care continuum	Broad coverage from prevention to hospital care	Strong in prevention, primary and community; coordination across interfaces	Strongest across prevention, primary care and community support	Canterbury provides system integration, Healthy Families strengthens prevention	Coordination across primary, community, hospital and ongoing care
Population scale and comparability	National programme with networks of approximately 50,000 people	National; teams responsible for ~2,000 to 3,000 people	National programme delivered through family doctors and regional clusters	Regional integration and selected community level delivery	Local teams and networks serving defined populations
Place and hyperlocal relevance	Local networks supported by community and voluntary partners	Defined neighbourhood territories with household-level outreach	Enrolled family doctors connected with community programmes	Strong hyperlocal focus through Healthy Families	Local partnerships responding to defined population needs
System breadth	Primary care, community teams, diagnostics, specialists, hospitals and voluntary partners	Primary care, community health workers, shared multiprofessional support, referral network	Family doctors, health clusters and community partners	Health, social care and partners beyond healthcare	Primary, community, hospital, mental health and home care
Evidence and maturity	Nationally implemented, with strong activity reporting but limited independent evaluation	Nationally implemented since 1994; strong but largely observational evidence	Nationally implemented, with longer-term evidence developing	Mature Canterbury experience and evaluated community programmes	Established but variable implementation, with outcomes evidence developing
Transferability to CTM	High, with adaptation of scale and governance	Moderate to high; transfer principles rather than workforce structure	Moderate to high, given different funding and delivery arrangements	High for regional integration and community-led prevention	High, with adaptation to the NHS Wales context
Distinctive contribution	Connected community care architecture	Neighbourhood population responsibility and proactive outreach	Prevention and continuity through a trusted family doctor	Regional integration and hyperlocal prevention	Population responsibility and networked primary care

Table 1.1.1. Criteria for Selection of the Five Exemplars

The review focuses on named programmes and models within these geographies, rather than attempting to assess their health systems as a whole:

- Ireland's Enhanced Community Care programme, which connects general practice, Community Healthcare Networks, specialist community teams, diagnostics and chronic disease management as part of a wider shift towards care closer to home[2]
- Brazil's Family Health Strategy, in which multidisciplinary teams take continuing responsibility for a defined neighbourhood population and use community health workers to connect households with primary care, health promotion and ongoing support[3]
- Singapore's Healthier SG programme, a national preventive-health initiative built around enrolment with a family doctor, personalised health plans and connections to local health-promoting and community support[4]
- the Canterbury Health System, which provides a regional example of sustained pathway integration and closer working between general practice, community, hospital and social care, considered alongside Healthy Families New Zealand as a complementary example of locally led action on the wider determinants of health[5,6]
- Ontario Health Teams and Primary Care Networks, which illustrate how primary care can organise collectively within partnerships responsible for coordinating care for defined populations[7]

Together, these exemplars provide different but complementary perspectives. Ireland offers practical insight into the service architecture required to expand community-based care. Denmark illustrates how accountability, investment and pathway responsibility can support a wider rebalancing of the system. Singapore brings a strong emphasis on prevention, longitudinal relationships and proactive health management. Canterbury demonstrates regional integration and the redesign of pathways between community and hospital services, while Healthy Families New Zealand offers a more explicitly community-led and hyperlocal perspective. Ontario contributes learning on population accountability and the collective organisation of primary care within a broader local partnership.

The selected portfolio also spans different population scales and operating levels. National reforms help identify the policy, investment and infrastructure required to support system-wide change. Regional models offer learning closer to the scale of a Health Board, while locality and community-based approaches demonstrate how a consistent strategic framework can still allow services to respond to different local

[2] https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland
[3] https://www.ism.dk/Media/638954298352847005/Danish%20Health%20Care%20Reform%202024%20%20in%20brief.pdf
[4] https://www.healthiersg.gov.sg/about/what-is-healthier-sg/
[5] https://assets.kingsfund.org.uk/f/256914/x/55e4db0bb9/quest_integrated_health_social_care_canterbury_nz_2013.pdf
[6] https://www.health.govt.nz/system/files/2023-01/case-study-healthy-families-commissioning-for-pae-ora-jan23.pdf
[7] https://www.ontario.ca/files/2024-01/moh-primary-care-networks-guidance-en-2024-01-23.pdf

needs. This combination is particularly relevant to CTM's intention to connect Health Board-wide capabilities with locality and hyperlocal delivery.

1.2 Research approach

Each detailed exemplar is assessed through a consistent framework. The analysis begins with the problem the model was intended to address, the population it serves and the geographical level at which care is organised. It then examines the model's layers of care, including prevention, primary and local care, enhanced community provision, urgent response, hospital and specialist services, and recovery or ongoing support. Digital and virtual care are considered as capabilities that connect these layers, rather than as separate destinations within the care journey.

The review also considers how each model operates: how people access support, who maintains continuity, how need and risk are identified proactively, how multidisciplinary teams work together and how escalation to, and recovery from, hospital care are managed. This is accompanied by an assessment of the enabling foundations, including workforce roles, information sharing, governance, funding, infrastructure and community participation.

Where outcomes are reported, the strength and nature of the evidence is made clear. Established models may have quantitative evaluations, qualitative accounts and longer-term implementation experience, while more recent programmes offer insight into strategic direction and system design but cannot yet demonstrate realised impact. Singapore's Healthier SG, launched in 2023, is an example of the latter, informative about direction but too recent to show long-term population outcomes.[3] Where evidence is largely observational, as with much of the Brazilian and Canterbury data, reported changes in activity or utilisation are not attributed to an exemplar unless the evidence establishes causality.

The findings therefore distinguish between demonstrated outcomes, reported experience and anticipated benefits. This allows the review to recognise promising practice without overstating what the evidence can support.

Ultimately, the relevance of each exemplar is considered through three practical questions:

- Which principles or features could CTM adopt?
- Which would need to be adapted to the NHS Wales and local CTM context?
- Which warrant further exploration through engagement, service design and development of the future operating model?

Used in this way, international experience provides a structured source of learning, not a blueprint, helping CTM make informed choices about the care model it wishes to create.

1.3 The international exemplar landscape

The longlist was deliberately broad, so that no relevant model was overlooked before the five detailed exemplars were chosen. Models are grouped by their principal contribution rather than by country, because national policy and neighbourhood practice answer different questions: policy creates the conditions for change, while local models show how care is organised around a person or community. The landscape falls into five broad and overlapping groups.

A landscape spanning different levels of care

The international landscape can be understood through five broad and overlapping groups.

Area of Learning	Illustrative exemplars	Principal relevance to CTM
National and whole system reform	• Ireland • Denmark • Singapore • Finland	How policy, accountability, investment and infrastructure can support a wider shift towards prevention, integration and care closer to home
Regional and population-based integration	• Canterbury (New Zealand) • Ontario (Canada) • Gesundes Kinzigtal (Germany)	How organisations can coordinate services and accept greater responsibility for the outcomes of a defined population
Locality and neighbourhood delivery	• Ireland's Community Healthcare Networks • Ontario's Primary Care Networks (Canada) • The Buurtzorg Model (The Netherlands)	How multidisciplinary capability, continuity and coordination can be organised close to local communities
Community participation and proactive prevention	• Healthy Families New Zealand • Brazil's Family Health Strategy • The Nuka System of Care (The United States)	How communities, families and local assets can shape prevention, engagement and access
Hospital and community integration	• Canterbury (New Zealand) • Denmark • Norway	How specialist services, local provision and discharge arrangements can operate as a connected pathway rather than as separate parts of the system

Table 1.3.1 The international exemplar landscape by area of learning

These categories are not mutually exclusive. Several exemplars operate across more than one level and derive their value from connecting national direction with local delivery. Ireland's Enhanced Community Care programme, for example, is supported through a national programme but delivered through Community Healthcare Networks and specialist community teams. Brazil's Family Health Strategy combines a national framework with delivery organised entirely around defined neighbourhood populations. Singapore's Healthier SG programme similarly establishes a national framework while

anchoring continuity in the relationship between residents, family doctors and community support.[8,9,10]

National reform and system conditions

Ireland, Denmark, Singapore, and Finland show that moving care closer to home depends on decisions about responsibility, resources, workforce, information and the relationship between general practice, community and hospitals, not on adding community services alone. Ireland is profiled in detail; Singapore likewise, for its emphasis on prevention and longitudinal primary care. Denmark's 2024 reform, effective from 2027, is retained as a spotlight on strategic direction rather than proven outcomes. Finland's 2023 transfer of health, social and rescue services to 21 wellbeing counties is relevant to governance but more structural than operational, and CTM already holds relatively integrated responsibilities as a Welsh Health Board.[11,12,13,14]

Regional integration and population responsibility

Canterbury, Ontario, and Gesundes Kinzigtal operates at a scale closer to CTM. Canterbury is profiled in detail for its pathway redesign and shared clinical leadership across the community–hospital interface; Ontario for population accountability and the collective organisation of primary care, noting that maturity varies between teams. Gesundes Kinzigtal is retained as a focused spotlight on incentives and shared savings, tempered by a WHO/OECD finding of no significant quality effect over 2006 to 2015 and a financial model unlike NHS Wales.[15,16,17,18]

Locality, neighbourhood and household delivery

Community Healthcare Networks, Primary Care Networks, and Buurtzorg demonstrate how continuity, multidisciplinary capability and coordination can be organised close to communities. Ireland's Community Healthcare Networks and Ontario's Primary Care Networks are covered within their detailed profiles, as the local delivery layer of larger national and regional models. Buurtzorg in the Netherlands is retained as a spotlight on relational care through small, autonomous nursing teams built around the individual's family, social network and existing community relationships. Its principles have already been tested in Wales: in 2017 the Welsh Government funded a Buurtzorg-based

[8] https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland
[9] https://www.ism.dk/Media/638954298352847005/Danish%20Health%20Care%20Reform%202024%20%20in%20brief.pdf
[10] https://www.healthiersg.gov.sg
[11] https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland/
[12] https://www.ism.dk/Media/638954298352847005/Danish%20Health%20Care%20Reform%202024%20%20in%20brief.pdf
[13] https://www.healthiersg.gov.sg/
[14] https://stm.fi/en/wellbeing-services-counties
[15] https://assets.kingsfund.org.uk/f/256914/x/55e4db0bb9/quest_integrated_health_social_care_canterbury_nz_2013.pdf
[16] https://www.ontario.ca/files/2024-01/moh-oht-hcp-guidance-doc-en-2024-01-22.pdf
[17] https://www.ontario.ca/files/2024-01/moh-primary-care-networks-guidance-en-2024-01-23.pdf
[18] https://wkc.who.int/docs/librariesprovider24/wkc-projects-documents/germany_case_study_policy_brief.pdf?sfvrsn=9aef2d1b_6&utm

Neighbourhood District Nursing pilot across three health boards, including Cwm Taf Morgannwg, and the independent University of South Wales evaluation found that the ethos of the model could transfer to a Welsh setting, though only with adaptation. It is not, however, a complete health system model and does not address the full range of diagnostic, urgent, hospital or specialist services within CTM's layered model.[19]

Brazil, Healthy Families New Zealand, and Nuka show how families and local assets shape prevention, engagement and access. Brazil's Family Health Strategy is profiled in detail for neighbourhood population responsibility and household outreach. Healthy Families New Zealand, considered alongside Canterbury, and the Nuka System of Care are retained as spotlights on locally led prevention and community ownership respectively.[20,21,22]

Connecting hospital and community care

A further group of exemplars addresses the interface between hospitals and local services. This is particularly relevant to CTM because the Future Vision is not intended to diminish the importance of hospitals. It seeks to clarify their role within a broader model in which specialist expertise can reach into community settings, people can avoid hospital where appropriate, and transitions back home are planned as part of a continuous pathway.

Canterbury provides practical experience of redesigning pathways across general practice, community and hospital services. Denmark's reform proposes a more explicit outward role for hospitals, including continued treatment responsibility following discharge. Norway offers additional learning through a system in which municipalities are responsible for primary health and care services while regional authorities oversee specialist services, and district medical centres can bring municipal and specialist provision together in local settings. This makes Norway useful for understanding shared responsibility across organisational boundaries, although it offers less prescription about the detailed frontline model than Ireland or Canterbury.[23,24,25]

This review confirms that the strongest learning for CTM will come from combining examples operating at different levels. National reforms can show how accountability, investment and common infrastructure support transformation. Regional models can demonstrate how services are integrated around a defined population. Local and hyperlocal examples reveal how care can become more proactive, relational and responsive to the circumstances of individual communities.

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[19] https://www.buurtzorg.com/about-us/buurtzorgmodel/
[20] https://www.gov.br/saude/pt-br/composicao/saps/esf
[21] https://www.health.govt.nz/system/files/2023-01/case-study-healthy-families-commissioning-for-pae-ora-jan23.pdf
[22] https://www.southcentralfoundation.com/nuka-system-of-care/
[23] https://www.ism.dk/Media/638954298352847005/Danish%20Health%20Care%20Reform%202024%20%20in%20brief.pdf
[24] https://assets.kingsfund.org.uk/f/256914/x/55e4db0bb9/quest_integrated_health_social_care_canterbury_nz_2013.pdf
[25] https://www.regjeringen.no/en/topics/health-and-care/innsikt/the-structure-of-the-healthcare-system/id227440/

The five geographies selected for detailed review, Ireland, Singapore, Brazil, New Zealand and Ontario, collectively provide this breadth. They also offer sufficiently distinctive perspectives to avoid examining several models that answer essentially the same question. The remaining exemplars, including Denmark, Finland, Gesundes Kinzigtal, Buurtzorg, Healthy Families New Zealand, the Nuka System of Care and Norway, are retained as shorter practice spotlights where they contribute a specific feature, such as national reform direction, autonomous neighbourhood teams, community ownership, integrated health and social care responsibility or population-based incentives.

1.4 Ireland: Enhanced Community Care Programme

Strategic relevance to CTM

Ireland's Enhanced Community Care programme shows how a national ambition for care closer to home can be translated into a defined service architecture. Developed through the wider Sláintecare reforms, it strengthens prevention, general practice and community services while improving access to diagnostics and specialist expertise outside hospital.

It operates nationally across a population of 5.15 million, built on 96 Community Healthcare Networks each designed to serve about 50,000 people, with Community Specialist Teams for older people and chronic disease operating across roughly three networks, a population of around 150,000.[26,27]

Ireland is relevant to CTM because it combines three things central to the Bonsai model: it describes care through explicit levels of need and complexity, organises delivery around defined local populations, and connects primary and community services with diagnostics, specialist support, urgent response and hospital care. The comparison is not exact, Ireland's formal layered model focuses on selected chronic diseases, while Bonsai describes a whole-system architecture, but the Irish experience offers useful evidence about how the capabilities within CTM's six layers can be connected and organised at different population scales.

Context and ambition

Enhanced Community Care is rooted in Sláintecare, Ireland's long-term reform programme, which sought to move away from an episodic, hospital-focused system towards prevention, continuity and care at the lowest appropriate level of complexity.[28] The direction reflects real demographic pressure: between 2016 and 2022 the

[26] https://www.cso.ie/en/releasesandpublications/ep/p-cpsr/censusofpopulation2022-summaryresults/keyfindings/

[27] https://www.rezoomo.com/contentFiles/jobs/30799/attachments/10118_CHN%20GP%20Lead%20Information%20Sheet%202022.pdf

[28] https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/committee_on_the_future_of_healthcare/reports/2017/2017-05-30_slaintecare-report_en.pdf

population grew by 8 per cent while the number of people aged over 70 grew by 26 per cent, with more people living longer with chronic disease, frailty and multiple needs.[29]

The programme received €240 million to establish Community Healthcare Networks, Community Specialist Teams and related diagnostic and community services.[30] The investment matters: care cannot simply be redirected from hospital unless local services have the workforce, infrastructure, diagnostic access and specialist support to respond safely. The intended change is a shift in capability and resources, not only in referral expectations.

The operating model

Ireland's clearest formal layered model is the National Framework for the Integrated Prevention and Management of Chronic Disease, covering cardiovascular disease, diabetes, COPD and asthma. It is not a universal model for every pathway, but it expresses the clinical logic underpinning the chronic disease component of Enhanced Community Care.[31]



[29] https://www.cso.ie/en/releasesandpublications/ep/p-cpsr/censusofpopulation2022-summaryresults/keyfindings/
[30] https://www.hse.ie/eng/about/personalpq/pq/2022-pq-responses/december-2022/pq-60324-22-violet-anne-wynne.pdf?
[31] https://about.hse.ie/publications/hcp-national-framework-for-the-integrated-prevention-and-management-of-chronic-disease-in-ireland-2020-2025/

Figure 1.4.1 Ireland's Model of care for the integrated prevention and management of chronic disease

The model comprises five levels.

- Level 0 is described as "Living well with chronic disease". It includes prevention, Making Every Contact Count, self-management support, telehealth and remote monitoring. The person and their ability to manage their health are the starting point, rather than a clinical institution
- Level 1 comprises General Practice. It includes structured review, assessment when a person's condition deteriorates, care planning, telephone triage and access to virtual specialist advice
- Level 2 introduces Community Specialist Ambulatory Care. This provides access to specialist teams, diagnostics, structured education, physiotherapy, dietetics, podiatry and cardiac or pulmonary rehabilitation
- Level 3 comprises Acute Specialist Ambulatory Care. It includes alternative outpatient pathways, respiratory outreach and other specialist services that require closer connection with acute expertise but do not necessarily require hospital admission
- Level 4 is Specialist Hospital Care. It includes emergency assessment, acute medical assessment, complex care and inpatient treatment requiring hospital resources

The model establishes a graduated response to need. General practice does not have to choose between managing a person alone and referring them into a conventional hospital pathway. Community specialist and ambulatory services provide additional levels of assessment, diagnostics and treatment between those two settings.

Movement is also intended to occur in both directions. A person may require more intensive support when their condition deteriorates but should return to general practice and community care once their needs stabilise. Early supported discharge and ongoing care at home are therefore integral to the model.

This provides a close parallel with the underlying logic of the Bonsai model. Both approaches seek to support people through the broadest and least intensive layer that can safely meet their needs, with progressively greater capability available as complexity increases. However, CTM makes several capabilities more explicit by separating Virtual Response, Community Urgent Response, and Diagnostic and Treatment Platforms into distinct layers.

The Older Persons and Chronic Disease Service Model provides a broader representation of how these levels are organised across home, community and hospital settings. It describes a connected continuum from living well at home, through Community Healthcare Networks and Specialist Ambulatory Care Hubs, to hospital care. Community diagnostics, residential care, rehabilitation, convalescent care and end of life support sit between and connect the principal settings.[32]

[32] https://assets.hse.ie/media/documents/Health_Regions_Integrated_Service_Delivery_Model.pdf

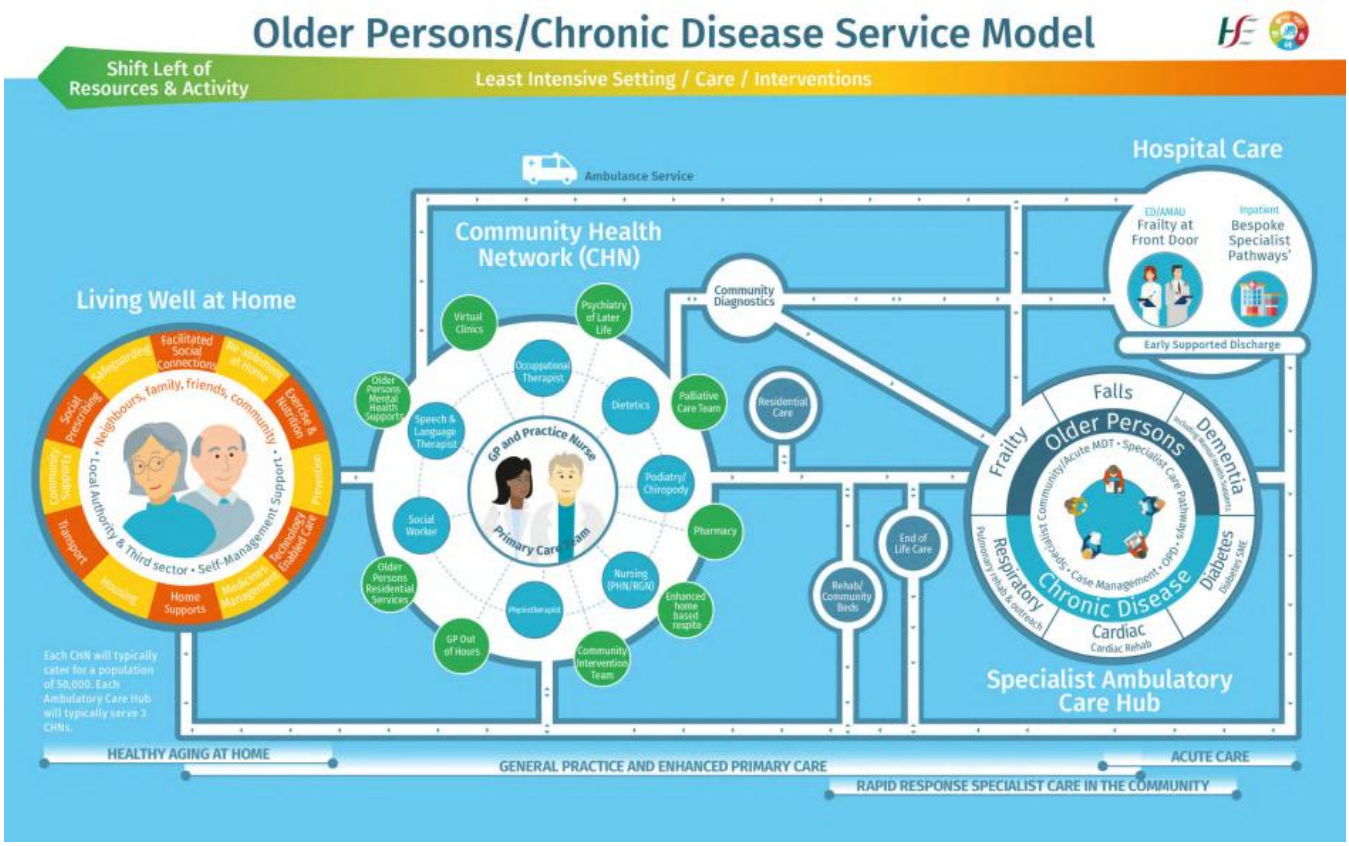


Figure 1.4.2 Older Persons and Chronic Disease Service Model, Ireland

The model begins with living well at home. Individuals are shown within their families, neighbourhoods and communities rather than solely as recipients of healthcare. Housing, transport, nutrition, exercise, social connection, community support and home support all affect whether people can maintain their health and independence. The model also recognises the contribution of local authorities and the third sector.

This is broader than Level 0 of the chronic disease pyramid and provides a closer parallel with CTM's Prevention Layer. Both recognise that prevention depends on the circumstances in which people live, the assets available within communities and the ability of different partners to act before needs escalate.

The next component is the Community Healthcare Network. General practice, the practice nurse and the primary care team sit at the centre, surrounded by community nursing, therapies, pharmacy, social work, mental health, palliative care, virtual clinics, community intervention, out of hours services and residential care.

The network creates a local organising structure through which professionals can develop shared care plans, discuss complex cases and coordinate services for a defined population. Its purpose is not simply to group existing services within a common geography. It is intended to support greater collective responsibility for local population need.

This is most directly relevant to CTM's Locality Care layer. It demonstrates how general practice can operate within a wider multidisciplinary offer rather than as a collection of separate practices referring independently into community and hospital services. CTM's ambition is broader because Locality Care is intended to connect primary, community, social and preventive care. Nevertheless, the Community Healthcare Network provides a useful example of the relationships and local leadership needed to support such an offer.

When needs exceed the capability of routine primary and community services, people can access a Specialist Ambulatory Care Hub. The hubs support older people living with frailty, falls or dementia, and people with diabetes, cardiac or respiratory disease. They bring together specialist opinion, multidisciplinary assessment, rehabilitation, structured education and diagnostics outside traditional hospital settings.

These hubs provide the closest parallel with CTM's Diagnostic and Treatment Platforms. Both seek to make a broader range of investigations, specialist assessment and treatment available outside hospitals. They also illustrate why some capabilities need to operate across several localities. A specialist workforce, equipment, and diagnostic infrastructure may not be sustainable in every neighbourhood or locality, but platforms serving a larger population can still provide them closer to communities.

Hospital services remain an essential part of the Irish model, but their role becomes more focused. Frailty assessment at the emergency and acute medical front door, bespoke specialist pathways, inpatient treatment and early supported discharge connect hospital services to the wider community model. Hospital expertise can also reach into community settings through specialist outreach, virtual clinics, integrated consultants and shared pathways.

This is consistent with CTM's Specialist and Emergency Hospital Care layer. In both models, hospitals are not removed from the care continuum. They become more focused on emergency, critical, complex and specialist care that cannot be delivered safely elsewhere.

Access, coordination and movement between settings

The Irish model is designed around a combination of local continuity and access to progressively more specialised capability. General practice provides an important clinical relationship, while the Community Healthcare Network connects the practice to a broader multidisciplinary team. A clinical coordinator can support multidisciplinary meetings, care planning and the allocation of a key worker for people with complex needs.[33]

Where specialist advice is required, general practitioners and community teams can refer into Community Specialist Teams or use virtual clinics to discuss care with specialists. Access to community diagnostics allows more assessment and management to remain outside hospital.

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33 https://www.rezoomo.com/contentFiles/jobs/30799/attachments/10118_CHN%20GP%20Lead%20Information%20Sheet%202022.pdf

When a person experiences an acute deterioration, Community Intervention Teams, rapid specialist response, frailty services and other hospital avoidance pathways can provide time limited care within the community. This includes nursing interventions, assessment, treatment and support for earlier discharge.

These capabilities align with CTM's Community Urgent Response layer. Ireland does not present them as a separate formal level within its five-level pyramid, but its wider service model clearly recognises the need for rapid response between general practice, specialist community services and hospital care. CTM makes this bridging function more visible by giving it a distinct layer within the Bonsai architecture.

Digital services also span the Irish model. HealthLink supports electronic referrals, the HSE Area Finder helps practices identify the appropriate local service, and virtual clinics give general practitioners access to specialist advice without requiring every patient to attend hospital. Telehealth and remote monitoring are included within the lowest level of the chronic disease model.

Ireland therefore treats digital capability mainly as an enabler operating across existing levels. CTM goes further by defining Virtual Response as the system front door. This provides a useful point of differentiation. The Irish experience demonstrates what virtual care can do, while CTM's model gives those functions a clearer role in access, navigation, triage, and early response across the whole system.

Population scale and local variation

The use of defined population units is one of the most relevant features for CTM. Community Healthcare Networks were designed around approximately 50,000 people, while Community Specialist Teams and ambulatory hubs commonly support several networks and a population of around 150,000.

This establishes different scales for different forms of capability. Local relationships, multidisciplinary primary care and understanding of population need can be organised at network level. More specialised staff, diagnostics, rehabilitation and equipment can operate across groups of networks where a larger population is required to sustain them.

The population figures should not be transferred directly to CTM. Ireland's own experience shows that actual network populations can exceed the original planning assumption and that areas with similar population sizes can have different service requirements. Age, deprivation, rurality, transport, workforce supply, disability and access to facilities all affect the level and type of capacity required.[34]

The transferable lesson is that CTM should define the most appropriate footprint for each Bonsai layer and capability. Some elements of prevention and community asset development will need to operate at a hyperlocal level. Locality Care will require a population large enough to support multidisciplinary teams while retaining strong local relationships. Community Urgent Response and Diagnostic and Treatment Platforms

[34] https://cnh.hseland.ie/media/f5ahhajk/19-erin-smith-health-needs-analysis-of-counties-meath-and-louth.pdf

may need to serve several localities. Specialist and Emergency Hospital Care will require planning across the Health Board and, for some services, beyond CTM.

Enabling foundations

The Irish model depends on more than the visible configuration of services. Network managers and general practitioner leads provide local leadership. Clinical coordinators support multidisciplinary working, while Community Specialist Teams and Integrated Care Consultants connect community and hospital services.

Population profiling is intended to help each network understand its demographic, health and service needs. This enables local planning to reflect differences between populations rather than assuming that every network requires an identical service offer.[35,36]

Community and voluntary organisations are also incorporated into the model. In 2024, the HSE reported that more than 42,000 people received support through its partnership with ALONE, including social connection, housing support, technology and access to community services.[37]

The model also depends on investment in workforce, diagnostics, digital referrals, facilities and transport. This is directly relevant to CTM. The Bonsai model cannot be implemented through pathway redesign alone. Each layer will require sufficient capacity, clear clinical responsibility and the infrastructure needed to absorb the activity expected of it.

Evidence and reported outcomes[38]

HSE reporting indicates that Enhanced Community Care is delivering significant activity outside conventional hospital pathways. During 2024, Community Specialist Teams for older people recorded approximately 133,000 patient contacts. The HSE reported that 81 per cent of patients were discharged home following community intervention and estimated that more than 7,000 frail adults avoided an unnecessary hospital admission.

More than 645,000 structured chronic disease reviews were completed in general practice. The HSE also reported a 15 per cent reduction in hospital admissions among chronic disease patients between 2019 and 2023, compared with a 1.3 per cent reduction in medical admissions overall.

Community diagnostic activity included more than 280,000 radiology tests and almost 218,000 blood tests used to support the identification of new heart failure. Mobile radiology was provided to more than 7,000 nursing home residents, with the HSE

35 https://www.rezoomo.com/contentFiles/jobs/30799/attachments/10118_CHN%20GP%20Lead%20Information%20Sheet%202022.pdf
36 https://cnh.hseland.ie/media/f5ahhajk/19-erin-smith-health-needs-analysis-of-counties-meath-and-louth.pdf
37 https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland/
38 https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland/

reporting that 95 per cent were treated within their existing setting rather than transferred to hospital.

Integrated Care Consultants and their acute teams recorded more than 117,000 patient contacts in 2024. More than 900 virtual clinics were held, and the HSE reported an 85 per cent reduction in hospital attendance among patients using heart virtual clinics.[39]

These findings suggest that the model is expanding access to diagnostic and specialist capability outside hospital and enabling more care to remain within general practice and community settings. However, most national outcome figures are reported by the HSE as the programme provider. Published reporting does not consistently describe comparison groups, regional variation or the methodology used to estimate avoided admissions. The figures should therefore be treated as reported programme outcomes rather than definitive evidence that Enhanced Community Care caused every observed change.

An observational study published in 2025 provides some additional evidence concerning the contribution of community coordination. Among older people receiving support through ALONE, participation was associated with improvements in quality of life, personal capability and loneliness, together with reductions in some forms of health service use. The absence of a matched comparison group means that the study demonstrates an association rather than establishing causality.[40]

Relevance across the CTM Bonsai layers

Ireland shows that a connected, layered model can work in practice, which supports the direction of Bonsai and shows where CTM can go further. Table 1.4.3 sets out what each Bonsai layer can take from the Irish experience.

[39] https://about.hse.ie/news/hse-enhanced-community-care-improving-health-outcomes-for-patients-across-ireland/
[40] https://academic.oup.com/ageing/article/54/Supplement_4/afaf318.195/8371661

CTM Bonsai layer	Learning from Irish System	Potential implication for CTM
Layer 0: Prevention Layer	Living well at home recognises the contribution of families, communities, housing, transport, local authorities and the third sector	Design prevention around population intelligence and community assets, not only clinical interventions
Layer 1: Virtual Response	Telehealth, remote monitoring, virtual clinics, telephone triage and electronic referral support care across the Irish model	Create a coherent digital front door that supports access, navigation, early triage and connection to every layer
Layer 2: Locality Care	Community Healthcare Networks organise general practice and multidisciplinary community services around defined populations	Establish a consistent locality architecture connecting primary, community, social and preventive care
Layer 3: Community Urgent Response	Community Intervention Teams, rapid specialist response, frailty services and hospital avoidance pathways provide alternatives during deterioration	Create an explicit bridge between Locality Care, diagnostics, specialist advice and hospital services
Layer 4: Diagnostic and Treatment Platforms	Specialist Ambulatory Care Hubs provide diagnostics, rehabilitation, education and specialist treatment across several networks	Organise selected diagnostic and treatment capabilities across groups of localities where greater scale is required
Layer 5: Specialist and Emergency Hospital Care	Frailty at the hospital front door, specialist pathways and early supported discharge connect hospital care back to community services	Focus hospitals on emergency, critical, complex and specialist care while designing clear outward connections

Table 1.4.3 Irish System's relevance to CTM Bonsai Layer

CTM will need to apply the same discipline to the Bonsai model. Each layer will require a defined purpose, population footprint, service offer, access route and relationship with the layers around it. The movement of people must be accompanied by the movement of information, clinical responsibility and, where appropriate, workforce and resources.

Particular attention will be required at three interfaces. Virtual Response must connect people to the appropriate service rather than becoming an additional access channel operating separately from existing pathways. Community Urgent Response must bridge planned locality services and hospital care without creating another isolated service. Diagnostic and Treatment Platforms must be designed around pathway requirements and population need rather than being defined primarily by buildings.

Implications for CTM design

The Irish learning translates into some practical design considerations for CTM:

- Define, for each layer, a clear purpose, population footprint, service offer, access route and relationship with the layers around it.
- Ensure that when people move between layers, information, clinical responsibility and, where appropriate, workforce and resources move with them.
- Ensure that Virtual Response connects people to the right service rather than operate as an additional, separate access channel.
- Make Community Urgent Response a genuine bridge between planned locality services and hospital care, not another isolated service.
- Design Diagnostic and Treatment Platforms around pathway requirements and population need rather than around buildings.

The clearest lesson is that a layered model becomes operational only when the relationships between its layers are defined. It is the connections, local coordination, shared information, rapid response and clear hospital interfaces, rather than the layers themselves, that make care continuous around the person.

1.5. Singapore

Singapore provides an example of a national health system that is deliberately shifting from episodic treatment towards prevention, continuity and population health. Its relevance to CTM lies in how national policy, regional health systems, family doctors, community organisations and digital services are being connected around defined populations.

Singapore introduced a major reform in the form of Healthier SG, which was launched nationally in July 2023. It is supported by Age Well SG and the more recent Age Well Neighbourhoods initiatives, which bring health, care, community support and accessible infrastructure together within areas that have higher concentrations of older people.

Taken together, these initiatives offer useful learning for the lower layers of the Bonsai model. Singapore is strongest in prevention, digitally supported access, primary care continuity and community support.

Context and ambition

Singapore faces the same demographic pressure now emerging across CTM. The country reached super-aged status in 2026, with more than one in five citizens aged 65 and above[41], and one in four projected to be 65 and above by 2030.[42] Rising chronic disease and an ageing population have driven healthcare spending upwards, with hospital and long term care demand growing fastest.

Healthier SG is Singapore's response and its largest healthcare reform in three decades. It sits within a longer national direction summarised as three shifts: beyond healthcare to health, beyond hospital to community, and beyond quality to value.[43]

The reform addresses a specific structural problem. Before Healthier SG, only three in five Singaporeans had a regular family doctor, and private general practitioners provided around 80 per cent of primary care attendances but often lacked the resources to manage complex, continuing need.[44,45] The reform therefore seeks to convert occasional, transactional contact into a continuing relationship, and to give primary care the information, capacity and incentives to work preventively.

Singapore's operating model

Singapore's model can be read as a stack that runs from national policy down to the individual, with hospital care connected to the side and digital capability running underneath. Figure 1.5.1 sets out this architecture.

[41] https://www.asiaone.com/lifestyle/age-well-neighbourhood-bedok-bukit-panjang-tiong-bahru-redhill

[42] https://www.trade.gov/market-intelligence/singapore-health-initiative

[43] https://speakingofmedicine.plos.org/2023/06/05/transforming-health-systems-equipping-primary-care-to-manage-the-health-of-singaporeans/

[44] https://www.moh.gov.sg/newsroom/white-paper-on-healthier-sg/

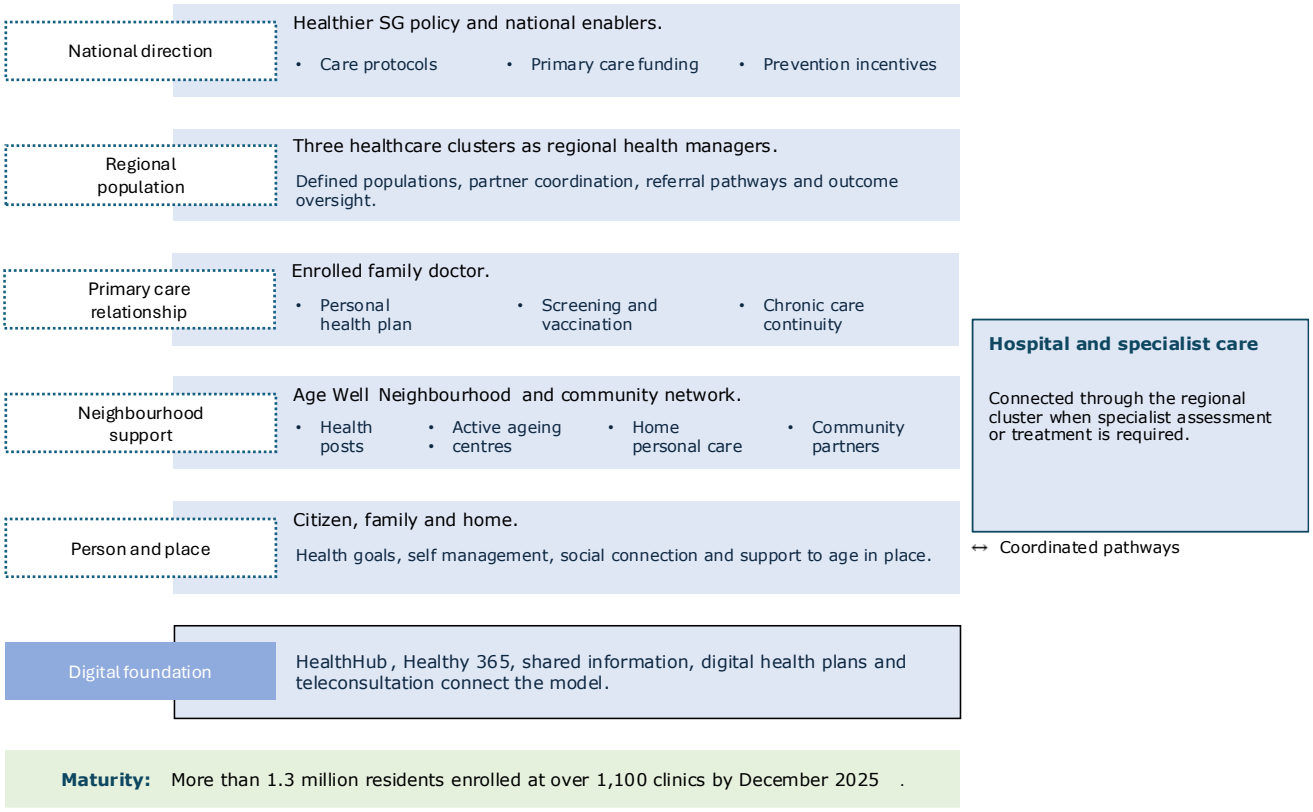
[45] https://www.thelancet.com/journals/lanwpc/article/PIIS2666-6065(23)00179-7/fulltext

At national level, Healthier SG provides the policy direction and the national enablers: shared clinical protocols, primary care funding and prevention incentives.[44]

Three public healthcare clusters act as regional health managers. Each is responsible for a population of approximately 1.5 million people and coordinates family doctors, hospitals and community partners, develops referral pathways, and reviews population needs and outcomes.[44] This provides a bridge between national policy and local delivery.

The primary care relationship sits at the centre. Residents aged 40 and above are encouraged to enrol with one family doctor, who takes ongoing responsibility for their preventive and primary care. Following enrolment, the resident and doctor agree a personal health plan covering lifestyle goals, screening, vaccination and the management of existing conditions, reviewed annually.[46]

Neighbourhood support surrounds the clinical relationship. Age Well Neighbourhoods and the wider community network bring together Active Ageing Centres, Community Health Posts, enhanced home personal care and community partners, so that prevention, social connection and basic health support are available close to home.[47]



[46] https://www.moh.gov.sg/newsroom/white-paper-on-healthier-sg/

[47] https://www.moh.gov.sg/newsroom/three-more-age-well-neighbourhoods-to-strengthen-support-for-seniors-in-the-community/

Figure 1.5.1 Singapore's population health operating model

At the base sits the person, family and home. The model treats health goals, self management, social connection and the ability to age in place as the foundation rather than an afterthought. Hospital and specialist care connects to this stack rather than sitting within it, reached through the regional cluster when specialist assessment or treatment is required. Underneath, a digital foundation of HealthHub, Healthy 365, shared information and teleconsultation connects the layers.[46]

The primary care relationship in detail

The distinctive feature for CTM is not registration itself, which already exists in NHS primary care, but how Singapore uses the registered relationship. Enrolment is voluntary and opt-in. Residents already had access to GPs and polyclinics without it, so being counted requires an active choice to commit to one doctor and complete a health plan.[48]

Participating doctors work to national protocols covering prevention and major chronic conditions. They receive an annual payment for each enrolled person, adjusted for health risk and expected scope of care, in addition to fees for individual consultations.[49] This creates a financial mechanism for recognising preventive work and continuing population responsibility rather than rewarding activity alone.

The financing detail is not transferable. The relevant principle is that primary care needs sufficient information, capacity and incentives to identify risk, plan care proactively and sustain relationships. For CTM, the opportunity is to make more active use of already registered populations through risk identification, anticipatory planning and clearer connections between practices, locality teams and community services.

From national policy to neighbourhood support

Healthier SG recognises that clinical advice alone rarely changes health behaviour, so family doctors can connect people to programmes run by the Health Promotion Board, the People's Association, Sport Singapore and other community organisations.[49]

Age Well Neighbourhoods add a spatial dimension. The first neighbourhood rolls out in Toa Payoh in 2026, with Bedok, Bukit Panjang and Tiong Bahru Redhill following from 2027. Together, the four will cover more than 110,000 older people.6 Each brings enhancements to four components: Active Ageing Centres for social connection and prevention, Community Health Posts for basic assessment, coaching and teleconsultation, enhanced home personal care, and senior friendly neighbourhood infrastructure such as safer homes, streets and public spaces.[50]

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[48] https://annals.edu.sg/healthier-sg-awareness-and-enrolment/

[49] https://www.moh.gov.sg/newsroom/white-paper-on-healthier-sg/

[50] https://www.moh.gov.sg/newsroom/three-more-age-well-neighbourhoods-to-strengthen-support-for-seniors-in-the-community/

The last component is the most distinctive. The model treats place, safer homes, accessible streets and transport, as part of the care system rather than as separate infrastructure works. This is directly relevant to CTM, where access is shaped by transport, geography, deprivation and differences between communities. A locality model that ignores the physical environment misses a real lever.

Digital enablement

Digital capability is embedded across the model rather than bolted on. HealthHub gives residents access to their personal health plan, records, appointments and results, while Healthy 365 supports activity tracking and community programmes, connecting the family doctor, the individual's health goals and activity outside the clinic.[49] By the time of the White Paper, around 700,000 residents, roughly one in five adults, were already using Healthy 365 regularly.[49]

Technology is not the model in itself. Its value depends on a continuing clinical relationship, accessible community provision and the ability to move information across services. For CTM, this reinforces the need for Virtual Response to connect people to the wider model rather than operate as a separate digital channel.

Population scale and coordination

The use of defined populations is one of the most relevant features. Singapore's three clusters manage around 1.5 million residents as regional health managers, responsible for coordination, referral pathways, and outcome oversight.[51]

These clusters are far larger than CTM and should not be transferred as a unit of organisation. The transferable point is the function rather than the scale: a defined population held by an accountable coordinator, responsible for connecting providers and reviewing outcomes. CTM will need to decide the appropriate footprint for each Bonsai capability rather than adopting a single population size.

Evidence and maturity

Healthier SG has achieved substantial early implementation. By December 2025, more than 1.3 million residents had enrolled at over 1,100 primary care clinics nationwide.[52] These figures demonstrate reach and adoption, but they measure implementation rather than population impact. Enrolment is voluntary, and around eighteen months after launch only about half of the eligible population had enrolled.[53]

The evidence should therefore be read with care. An independent review at the two year mark treated enrolment as an early sign of acceptability but noted that bringing private GPs fully on board remains a live challenge, citing administrative burden and

[51] https://www.moh.gov.sg/newsroom/white-paper-on-healthier-sg/
[52] https://apps.who.int/gb/statements/EB158/PDF/Singapore-10.pdf
[53] https://annals.edu.sg/healthier-sg-awareness-and-enrolment/

incentives to enrol simpler patients.[54] Singapore's Ministry of Health has itself indicated that the initial results of a healthier population will probably take ten years to appear.[51]

Age Well Neighbourhoods are less mature still, with services introduced progressively through 2026 and 2027. They should be treated as a promising development.

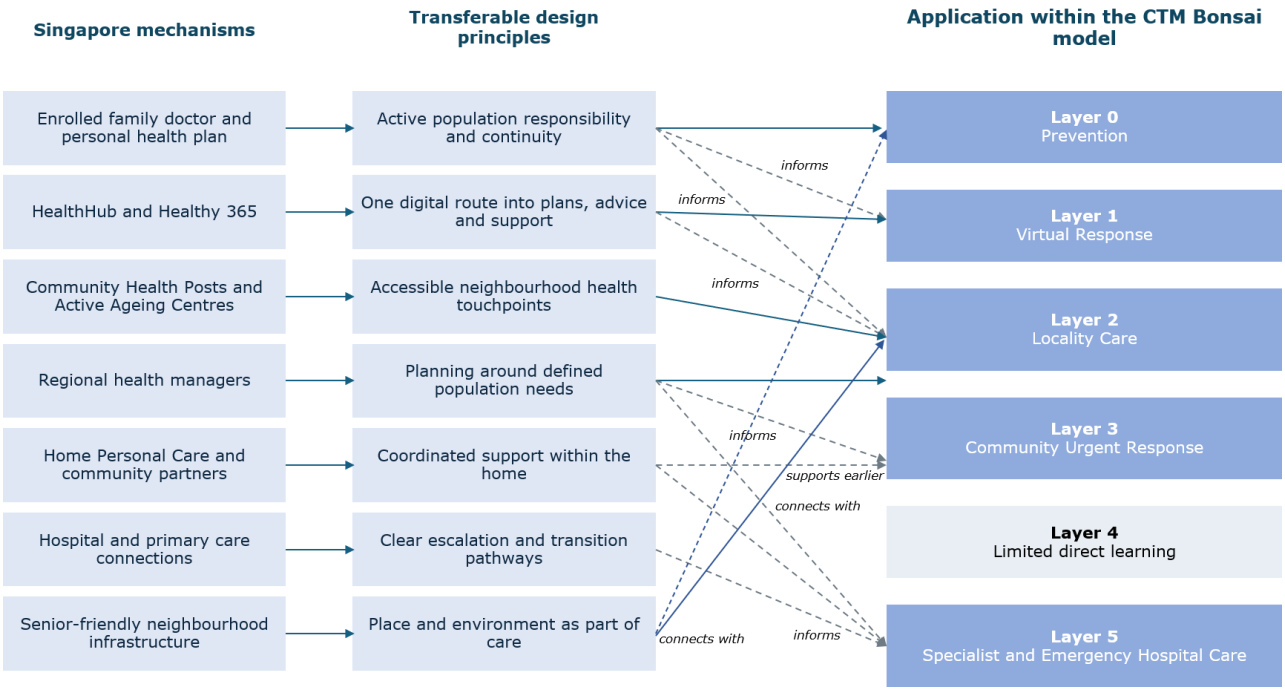


Figure 1.5.2 Singapore's population health operating model

CTM Bonsai layer	Learning from Singapore	Potential implication for CTM
Layer 0: Prevention	Enrolled family doctor, personal health plans, screening, vaccination and links to community activity make prevention a continuing relationship	Anchor prevention in a continuing relationship connected to community and local authority assets
Layer 1: Virtual Response	HealthHub, Healthy 365 and teleconsultation give one digital route into plans, advice and support	Build a coherent digital front door that is integrated with primary care and locality teams
Layer 2: Locality Care	Family doctors, Community Health Posts and Active Ageing Centres provide accessible neighbourhood touchpoints around defined populations	Organise locality care around registered populations, with neighbourhood touchpoints and attention to place
Layer 3: Community Urgent Response	Continuity can support earlier recognition, but urgent response is not a central feature of the model	Treat the learning as indirect; continuity can aid earlier detection and escalation

[54] https://www.thelancet.com/journals/lanwpc/article/PIIS2666-6065(25)00143-9/fulltext

Layer 4: Diagnostic and Treatment Platforms	Limited direct learning within Healthier SG and Age Well Neighbourhoods	Draw diagnostic and platform learning primarily from other exemplars
Layer 5: Specialist and Emergency Hospital Care	Regional clusters connect hospitals to population health, but hospital redesign is not the focus	Connect hospitals through population health management rather than looking to Singapore for hospital redesign

Table 3.5.1 Learning from Singapore Across CTM Bonsai Layers and Potential Implications for CTM

Overall, Singapore provides a credible example of prevention organised as a continuing relationship between the citizen, family doctor, community and regional health system. Its most useful contribution to CTM is the connection between population enrolment, personal health planning, digital access and neighbourhood support. It helps show how the lower Bonsai layers could work together to identify risk earlier and support people before their needs escalate into hospital care.

Implications for CTM design

The Singapore learning translates into four practical design considerations for CTM:

- Turn population responsibility into an active relationship with individuals, with a clear mechanism through which identified groups receive an agreed plan and continuing support.
- Connect prevention to accessible community opportunities, so that the Prevention layer draws on local authority and community assets rather than remaining a health promotion function.
- Design locality care around place as well as people, considering where people live, how they reach support and which community assets already exist.
- Build a single digital front door that connects the layers, providing access to advice, plans, appointments, monitoring and community support, but only where it is integrated with primary care and locality teams rather than operating separately.

The notable lesson is that prevention, digital access and locality care work only when they are joined into one relationship around the person. A continuing plan, a shared digital route, community assets and a strong local team can turn a registered population into a supported one.

1.6. Brazil: Family Health Strategy

Strategic relevance to CTM

Brazil's Family Health Strategy is a mature model of neighbourhood primary care built around responsibility for a defined population. It is particularly relevant to CTM because it shows how prevention, proactive outreach, continuing care and local knowledge can be organised as the core operating model rather than added as separate programmes.

The model does not cover every part of the Bonsai model equally. Its greatest relevance is to Layers 0 and 2, with supporting learning for Layer 1. Its contribution to urgent response, diagnostics and hospital care is principally about coordination and continuity across interfaces.

Core operating model

Each Family Health Team is responsible for a defined geographical territory, typically covering around 3,000 to 4,000 people, with residents registered to a single team.[55] This is a financing parameter rather than a universal staffing formula, but it illustrates the scale at which continuing population responsibility is organised.

The minimum team normally includes a family or generalist doctor, a nurse, nursing support and community health workers. Oral health and wider professional support can be added according to local need. Teams normally work from a Basic Health Unit but also provide care in homes, schools and community settings.[56]

The model combines five functions that are often separated in conventional health systems.

Function	How it operates
Population responsibility	Every team has a defined territory and registered population
Continuing clinical care	The same local team provides routine care and ongoing condition management
Proactive outreach	Community health workers identify need and maintain contact with households
Population intelligence	Registration and clinical information are used to monitor risks, gaps and follow-up
Care coordination	The local team manages onward referral while retaining responsibility for continuity

Table 1.6.1 Brazilian 5 function Model

[55] https://www.commonwealthfund.org/publications/case-study/2016/dec/brazils-family-health-strategy-using-community-health-care-workers

[56] https://www.gov.br/saude/pt-br/composicao/saps/esf/equipe-saude-da-familia/faq

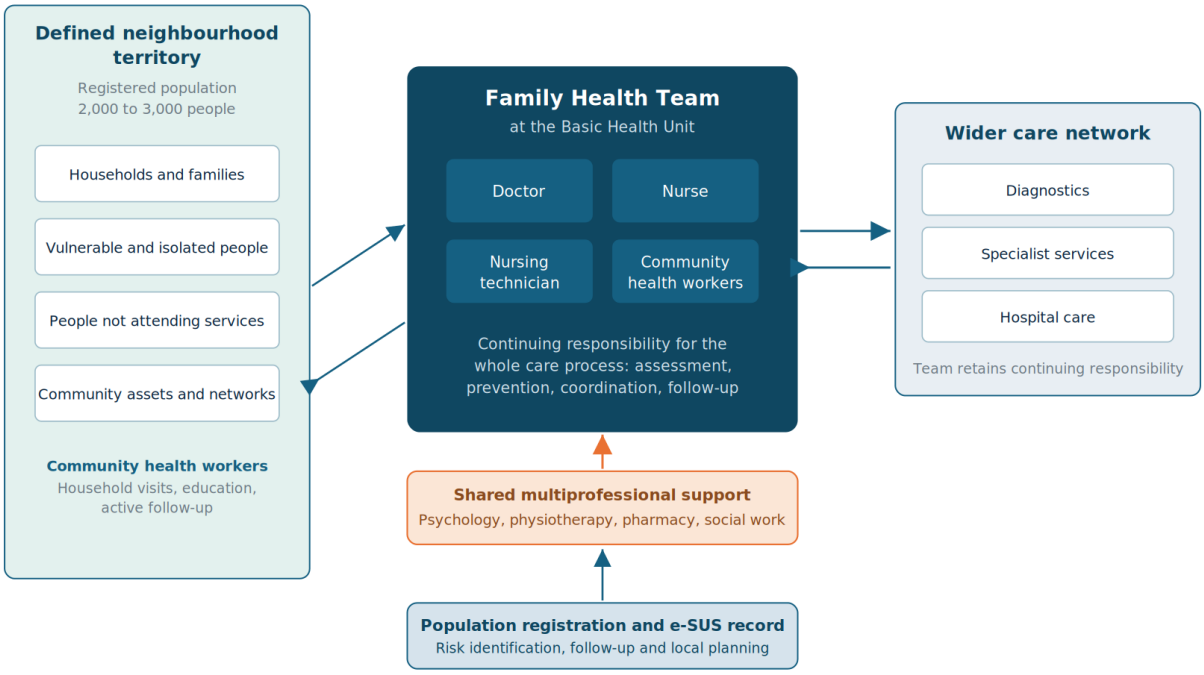


Figure 1.6.1 Singapore's population health operating model

Defined population responsibility

The starting point is a registered population rather than an unstructured volume of service contacts. Teams map their territory, register families and maintain information about health needs, vulnerability and patterns of access. This changes the unit of responsibility. The team remains responsible for people who attend regularly, people whose care is fragmented and people who have not recently made contact.

For CTM, this suggests that locality teams would require more than geographical boundaries. They would need:

- A defined population list
- Reliable information about need and vulnerability
- A shared locality caseload
- Processes for identifying people who are not engaging
- Measures covering the whole population, not only completed activity

Community connection and outreach

Community health workers undertake household visits, provide health education, identify emerging needs and connect people with the clinical team. They create a continuing relationship between the service and the community.[57] This matters because access is not treated as simply making services available. The model recognises that

[57] https://www.commonwealthfund.org/publications/case-study/2016/dec/brazils-family-health-strategy-using-community-health-care-workers

some people require active contact, particularly where there is deprivation, poor mobility, low health literacy or limited trust in formal services.

CTM would not need to reproduce the Brazilian community health worker role directly. The transferable principle is to create an explicit community connection function. This could combine existing community health staff, third sector organisations, social prescribing, public health teams and trusted community networks.

Multidisciplinary locality care

The Family Health Team combines clinical continuity with neighbourhood knowledge. The doctor and nurse provide ongoing clinical care, while community health workers contribute household insight, prevention and follow-up. Wider disciplines are available through shared multiprofessional teams known as eMulti. These teams provide individual consultations, group activity, home input, remote advice, case discussion and joint care, and their composition is determined by the needs and service gaps of the local population.[58]

The design principle for CTM is that specialist community expertise should wrap around locality teams. It should not necessarily require every profession to be permanently located within every neighbourhood.

Population information and digital enablement

The e-SUS primary care record supports registration, clinical history, vaccination, continuing monitoring and local population analysis. The associated population dashboard allows teams to understand the needs of their territory and identify people requiring follow-up. The Ministry of Health reported in 2025 that the electronic primary care record was in use in more than 4,200 municipalities.[59]

The relevant lesson for CTM is the connection between information and action. Population data should lead to identified need, then to a team worklist, then to outreach or care, and finally to an updated record. A population health platform will have limited impact if it only produces reports. It must generate operational work for locality teams and record what happens next.

Relevance across the CTM Bonsai layers

Read as a set of operating flows, the model separates four different kinds of connections. Figure 1.6.2 sets these out.

[58] https://www.gov.br/saude/pt-br/composicao/saps/acoes-interprofissionais/emulti/orientacoes

[59] https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/guias-e-manuais/2025/guia-ampliacao-e-qualificacao-no-seu-municipio-mais-saude-na-familia.pdf

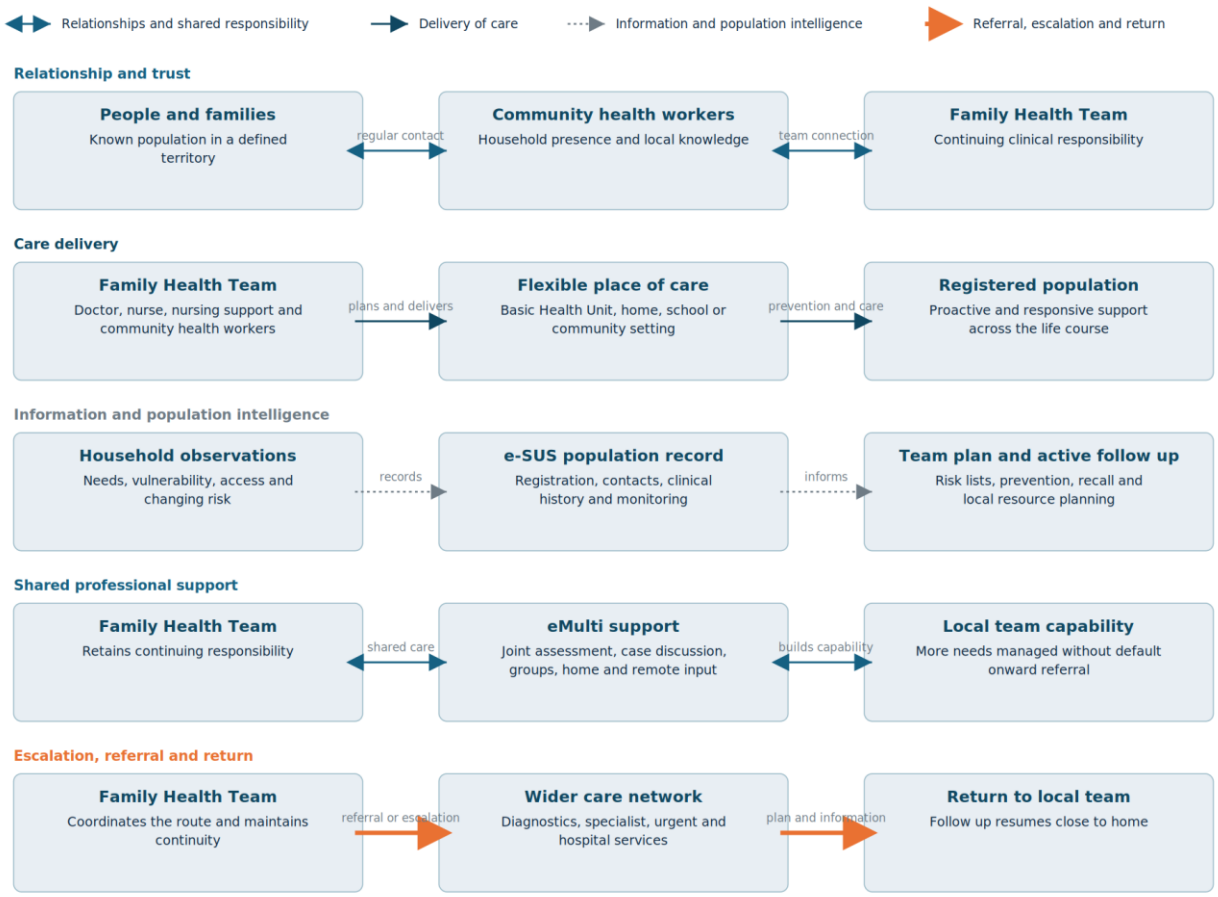


Figure 1.6.2 Family Health Strategy operating flows and their translation into the CTM Bonsai model

The four flows are distinct. Two-way arrows represent relationships, trust and shared responsibility. Solid arrows represent the delivery of care. Dotted arrows represent information and population intelligence. Thick arrows represent referral, escalation and return.

The diagram highlights an important principle. Onward referral should not end locality responsibility. Information and a clear continuing care plan should return to the local team after diagnostic, specialist, urgent or hospital care, so that follow-up resumes close to home.

Brazil provides its strongest direct learning for Layers 0, 1 and 2. It should not be presented as a complete layered care model. It is principally an operating model for the foundations on which the other CTM layers can be built.

CTM Bonsai layer	Direct learning from Brazil	Potential implication for CTM
Layer 0: Prevention	Defined populations, household outreach, risk identification, health education and active follow-up	Combine clinical care with proactive outreach through a defined community connection function
Layer 1: Virtual Response	Population records, digital access, monitoring and digitally supported communication	Link the digital front door to population intelligence that generates worklists
Layer 2: Locality Care	Stable multidisciplinary teams with continuing responsibility for a neighbourhood population	Give each locality team an identifiable population and access to shared professional expertise
Layer 3: Community Urgent Response	Limited direct learning, though local teams can identify deterioration and support escalation	Use continuity to aid earlier detection; draw the response model from other exemplars
Layer 4: Diagnostic and Treatment Platforms	Coordination with diagnostics and the potential to provide selected investigations in larger facilities	Design diagnostic access around pathways, with clear links back to locality teams
Layer 5: Specialist and Emergency Hospital Care	Referral coordination and return of the care plan to the local team after specialist intervention	Maintain local responsibility and a defined route for information to return

Table 1.6.3. Brazil's Primary Care Experience and Its Relevance to the CTM Bonsai Model

Evidence of impact

The Family Health Strategy has been associated with improvements in access, infant mortality, cardiovascular mortality, avoidable hospital use and health equity.

A cohort study covering around 1.2 million low-income adults in Rio de Janeiro found that Family Health Strategy use was associated with a 44 per cent lower hazard of death, with a stronger association among groups experiencing greater socioeconomic

disadvantage. The study used linked primary care, welfare and mortality records, although the authors recognised that unobserved differences between users and non-users could still have affected the findings.[60]

A separate nationwide analysis found that expansion of the Family Health Strategy was associated with reductions in heart and cerebrovascular mortality, particularly where coverage was higher and sustained over time.[61] The evidence therefore supports the value of comprehensive primary care and continuity, but it does not prove that any single component, such as community health workers, produced the outcomes independently.

Implications for CTM design

The Brazilian model suggests six practical design considerations for CTM.

- Locality teams should have an identifiable population for which they are responsible.
- Locality teams should have a shared view of health need, inequality, risk and recent service contact
- A defined community connection function should undertake outreach and identify unmet need.
- Wider professional expertise should be shared across locality teams according to population need.
- Digital information should generate active worklists for prevention, review and follow-up.
- Referral into higher Bonsai layers should include a defined route for information and responsibility to return to the locality team.

The strongest lesson is that Layers 0 and 2 should operate as one connected neighbourhood system. Prevention identifies need, community relationships support engagement, locality teams provide continuing care, and information connects the cycle. Together, these flows create ongoing responsibility for a known neighbourhood population.

[60] https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003357
[61] https://www.bmj.com/content/349/bmj.g4014.long

1.7 Ontario

Strategic relevance to CTM

Ontario is strategically relevant to CTM because it combines several complementary reforms that address the same challenge as the CTM 2030 Bonsai model: how to move the centre of gravity from episodic hospital treatment towards prevention, continuing primary and community care, home-based response and coordinated access to specialist services. The strongest transferable ideas are responsibility for a defined population, comprehensive interprofessional primary care, place-based partnership, navigation, community governance, enabling data spine and organised home-care capacity.[62]

Ontario should not, however, be described as operating one official province-wide "Layered Care Model".[63] The material reviewed brings together Ontario Health Teams, emerging Primary Care Networks, the Alliance for Healthier Communities' Neighbourhood Health Home proposal, Ontario Health at Home and Stepped Care. [64,] These have different sponsors, purposes and levels of maturity. They form a useful design repertoire, but not one settled statutory hierarchy that CTM can copy.[65]

The translation for CTM is therefore organisationally modest but operationally specific. CTM should use existing Welsh Cluster, pan-cluster and Regional Partnership Board arrangements as the chassis for a neighbourhood operating system, while defining how population accountability, access, multidisciplinary working, home-first response, information and resource movement operate across Bonsai Layers 0–5.

Core operating model

Ontario's relevant architecture is best understood as a connected set of functions. Ontario Health Teams provide the regional integration footprint;[66] Primary Care Networks strengthen primary-care leadership and shared capability;[67,68] the Neighbourhood Health Home describes a locally adaptable hub-and-spoke coordinating function;[69] Ontario Health at Home supplies home-care coordination and delivery capacity;[70] and community health organisations, link workers and public-health partners connect care with local assets and the wider determinants of health.

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[63] https://www.ontariohealthathome.ca/blobohahprod4cd80afe1b/wp-content/uploads/2025/07/HCCSS-2023-2024-OHaH-2024-2025-Annual-Report-EN.pdf
[64] https://www.ontariohealth.ca/clinical/primary-care
[65] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf
[66] https://hspn.ca/wp-content/uploads/2025/02/Ontario-Health-Teams-Central-Evaluation-March-2024-Policy-supports-for-integrated-care_new-models-and-approaches-from-a-comparative-international-study-for-Ontario-Health-Team.pdf
[67] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
[68] https://www.ontario.ca/files/2024-01/moh-primary-care-networks-guidance-en-2024-01-23.pdf
[69] https://www.allianceon.org/Model-Health-and-Wellbeing-0
[70] https://www.ontariohealthathome.ca/blobohahprod4cd80afe1b/wp-content/uploads/2025/07/HCCSS-2023-2024-OHaH-2024-2025-Annual-Report-EN.pdf

Component	Current status	Principal function	Most useful CTM translation
Ontario Health Teams	Province-wide regional architecture; maturity varies	Cross-sector integration for a defined population	Align Cluster/locality delivery with pan-cluster and RPB accountability
Primary Care Networks	Emerging across OHTs	Primary-care voice, attachment planning and shared capability[71]	Strengthen Professional Collaboratives and Cluster clinical leadership
Neighbourhood Health Home	Alliance-designed blueprint, not a statutory tier	Hub-and-spoke coordination, comprehensive care, equity and community governance	Define a neighbourhood health-home function rather than a new organisation or building
Ontario Health at Home	Operational provincial home-care organisation	Assessment, coordination, contracted provision, nursing and personal support	Integrate @Home, community nursing, social care and urgent response as one home-first pathway
Community health and link-worker model	Established in community-governed providers; variable local reach	Outreach, navigation, social prescribing and community connection[72]	Fund community assets and a clear connection function in every locality
Stepped Care 2.0	Mental-health and substance-use framework	Open access and matching intensity to need and preference	Use selectively in mental-health pathways, not as the architecture for all care

Table 1.7.1 Ontario Healthcare system Layers

Defined population responsibility

The Ontario reforms consistently shift attention from organisations and individual contacts towards responsibility for a defined population. Ontario Health Teams are organised around attributed populations, while the Primary Care Action Plan seeks universal attachment to publicly funded comprehensive primary care by 2029.[73, 74, 75] By August 2026, the province described a C$3.4 billion plan, more than 300 new teams, a target to connect two million additional people and 437,000 reported new connections since launch. These are government-reported implementation figures rather than independently verified outcome measures.

The Alliance's Neighbourhood Health Home adds a more local interpretation:[76] The neighbourhood may be geographic or defined around a population with shared needs,

[72] https://www.allianceon.org/Model-Health-and-Wellbeing-0
[73] https://news.ontario.ca/en/release/1007897/ontario-connecting-600000-more-people-to-a-family-doctor-or-primary-care-team
[74] https://hspn.ca/wp-content/uploads/2025/02/Ontario-Health-Teams-Central-Evaluation-March-2024-Policy-supports-for-integrated-care_new-models-and-approaches-from-a-comparative-international-study-for-Ontario-Health-Team.pdf
[75] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
[76] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf

and the hub can be a coordinating function located in an existing organisation rather than a new site. Responsibility includes people who attend regularly, people whose care is fragmented and people who are not visible through recent service use.

For CTM, "attachment" should be translated as relational continuity and clear responsibility rather than Canadian registration mechanics.[77] Every resident should know the first point of contact, and every locality team should know the population it is responsible for. CTM already has a valuable foundation: its population segmentation and risk-stratification work cover approximately 427,000 registered patients and can generate cohorts for proactive care.

Population responsibility should therefore include: a defined list or denominator; a shared locality caseload; information about need, deprivation and vulnerability; a method for identifying non-engagement and unmet need; named review responsibility; and measures covering the whole population rather than completed contacts alone. Predictive risk should be combined with professional judgement, equity weighting and community intelligence so that people facing barriers are not missed because they generate little recorded activity.

Community connection and outreach

Community connection is a core design feature, not an optional referral route. The Alliance model is rooted in community-governed primary healthcare and its Model of Health and Wellbeing. Link workers and navigators use relationship-based assessment, "what matters" conversations, warm connection and follow-up to connect people with welfare, housing, activity, peer support and other non-medical resources.

The transferable principle for CTM is not to reproduce one Ontario job title. It is to create an explicit community connection function that combines existing social-prescribing services, public health, third-sector organisations, community development, trusted networks and relevant community-facing health staff. It must include outreach for people affected by deprivation, transport barriers, poor mobility, low health literacy, language needs, digital exclusion or mistrust of formal services.

Social prescribing evidence remains promising but heterogeneous.[78] An international review found substantial variation in models and limited robust, transferable outcome evidence. Signposting alone can reproduce inequality when people lack confidence, transport, language support or digital access. Facilitated connection, feedback to the referrer and sustainable capacity in receiving organisations are essential.

For CTM, community assets should be commissioned as delivery capacity rather than treated as a low-cost destination for transferred demand. Link-worker deployment should be paired with recurring support for voluntary and community organisations, a maintained service directory, proportionate assurance and outcome feedback. Without this, waiting and exclusion will move rather than disappear.

[77] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
https://news.ontario.ca/en/release/1007897/ontario-connecting-600000-more-people-to-a-family-doctor-or-primary-care-team
[78] https://pmc.ncbi.nlm.nih.gov/articles/PMC10549579/
https://doi.org/10.1016/j.healthpol.2024.104992

Multidisciplinary locality care

The Neighbourhood Health Home places comprehensive interprofessional primary care at the centre of the local model.[79, 80] A coordinating hub connects independent practices, community health services, pharmacies, home care, social services, public health and community assets. Wider professional expertise can be shared across several neighbourhoods; not every discipline needs to be permanently located at every site. [81]

Ontario evidence supports the plausibility of team-based care while showing that organisational form and payment design matter.[82] An ICES comparison found that Community Health Centres served more disadvantaged and clinically complex populations and had lower emergency-department use than expected after adjustment.[83] A 2026 matched cohort study found that community-driven interprofessional practices were associated with more attached patients per physician, higher visit volumes, better continuity and stronger delivery of most preventive services. Both studies are observational and do not prove that team structure alone caused the outcomes.

OHT evaluation and case-study evidence also show that primary-care participation requires credible leadership, administrative support, protected time, trusted relationships and influence over decisions. Representation without delegated authority or resourcing is unlikely to create integrated delivery and may increase general-practice workload.

For CTM, primary care should be the clinical anchor without making general practice the sole delivery vehicle.[84] The core neighbourhood team should include primary care, community nursing, therapies, pharmacy, mental health, social work/social care, care coordination and link-worker capacity. It should connect to public health, diagnostics, specialist advice, ambulance, housing, welfare and other community services through an extended network. Daily coordination should coexist with profession-specific clinical accountability.

Ontario Health at Home contributes the operational logistics that team models often lack.[85] Its predecessors served around 670,000 people in 2023/24 and delivered or coordinated more than 40 million personal-support hours and more than 10 million nursing visits. It also reported growth in neighbourhood models, rapid-response nursing, remote monitoring, community clinics and emergency-diversion approaches. These are useful operational examples, but coordination, contracted provision and direct delivery are not synonymous, and much of the reported evidence remains activity or before-after data.

Population information and digital enablement

[79] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
[80] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf
[81] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf
[82] https://www.ontariohealth.ca/clinical/primary-care
[83] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf
[84] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
[85] https://www.ontariohealthathome.ca/blobohahprod4cd80afe1b/wp-content/uploads/2025/07/HCCSS-2023-2024-OHaH-2024-2025-Annual-Report-EN.pdf

A strong data foundation is common to the Neighbourhood Health Home, Ontario Health Team evaluation and CTM 2030.[86] The operational sequence should be explicit: population information identifies need; the system creates a team worklist; a named person undertakes outreach or care; the result is recorded; and the information is used for further planning and improvement. A population-health platform has limited value if it produces reports without generating operational work.

The minimum shared dataset should include population denominators; attachment and continuity; risk and frailty; deprivation and inclusion-health indicators; current team and coordinator; care plans; medication; referrals; diagnostic results; discharge information; and safeguarding and end-of-life status, where lawful and relevant.[87] CTM should prioritise a longitudinal locality view and reliable information exchange before pursuing a single comprehensive platform.

Digital and virtual access should be treated as a channel rather than a mandatory first layer everyone must pass through. Online advice, remote review and monitoring can improve convenience and support earlier triage, but every pathway requires an assisted-digital and non-digital equivalent, accessible formats, translation and communication support, and a clear route to face-to-face assessment.

Data governance must combine lawful role-based access, data minimisation, transparent patient information and clear consent or legal-basis rules. Equity assurance should examine who is missing from risk lists and virtual pathways as well as who uses them. Local dashboards should be timely enough to support daily operations and rapid-cycle improvement, not only retrospective performance reporting.

Relevance across the CTM Bonsai layers

When considered as an operating system rather than an organisational chart, the Ontario material separates four kinds of connection. Relationship flows create trust, shared responsibility and community accountability. Care-delivery flows connect prevention, continuing care, outreach, home response, diagnostics and treatment. Information flows convert population intelligence into worklists and return results and care plans. Escalation-and-return flows move clinical responsibility to urgent, specialist or hospital care when required and return it with a clear continuing-care plan.

86 https://www.allianceon.org/book/5-Connecting-Care-Building-Neighbourhood-Health-Home-Access-and-Integration

87 https://news.ontario.ca/en/release/1007897/ontario-connecting-600000-more-people-to-a-family-doctor-or-primary-care-team

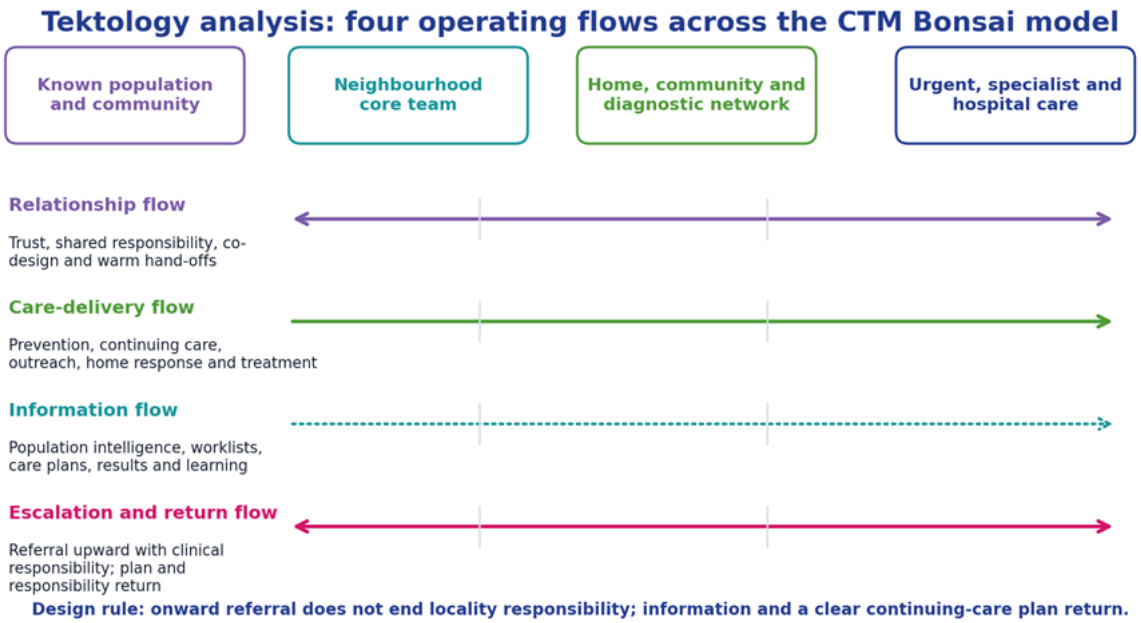


Figure 1.7.1 Ontario operating flows and their translation into the CTM Bonsai model.

The four flows should not be collapsed into a single referral pathway. A referral can transfer clinical responsibility for a period, but it should not end locality responsibility for continuity. Information and a clear plan must return after diagnostic, specialist, urgent or hospital care. Conversely, the locality team must have a reliable escalation route when risk exceeds neighbourhood capability.

For CTM, this means the Bonsai layers should behave as a coordinated continuum, not as a staircase that every person must climb. People may enter through different channels and move directly to the level that matches clinical need. Layer 0 supplies population intelligence and community connection; Layers 1–3 organise access, continuing care and rapid response; Layer 4 supplies networked diagnostics and treatment; and Layer 5 provides specialist and critical capability while supporting advice and safe return to locality care.

CTM Bonsai layer	Direct learning from Ontario	Potential implication for CTM
Layer 0: Prevention	Population accountability; community governance; link workers; equity and determinants of health	Use segmentation plus community intelligence; commission outreach and community assets; monitor reach and unmet need
Layer 1: Virtual Response	Primary care as front door;[88] digital/virtual options; navigation; stepped access in mental health	Create one navigation standard across phone, web and in-person routes;

[88] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025

		connect contacts to worklists and closed-loop referrals
Layer 2: Locality Care	Neighbourhood hub-and-spoke coordination; comprehensive teams; PCN leadership	Build Cluster-based neighbourhood teams with named coordination, daily huddles and access to shared professional expertise
Layer 3: Community Urgent Response	Rapid-response nursing, home-care routing, remote monitoring and transition support	Integrate @Home, frailty, pharmacy, therapies, mental health, social care and ambulance interfaces with clear response standards
Layer 4: Diagnostic and Treatment Platforms	Community clinics, locally clustered provision and integrated referral	Design networked diagnostics around complete pathways; protect same-day access for urgent community teams and clarify result ownership
Layer 5: Specialist and Emergency Hospital Care	Whole-pathway integration, specialist advice and hospital-to-home transitions	Reserve hospital care for complex/critical need while providing rapid advice, virtual wards, interface geriatrics and supported discharge

Ontario provides the strongest direct learning for Layers 0–3 and for the interfaces between locality, home and hospital care. Its contribution to Layers 4 and 5 is principally about pathway design, specialist advice, coordinated transitions and the return of responsibility. It should not be presented as a complete layered-care model.

Table 1.7.2. CTM 2030 Bonsai model of care supplied with the commission

Evidence of impact

The evidence supports the component parts more strongly than the complete Ontario architecture. Team-based, community-governed primary care is associated with improved attachment, continuity, preventive activity and potentially lower-than-expected emergency use, but the main Ontario studies are observational and susceptible to residual confounding.[89, 90]

The independent Ontario Health Teams Central Evaluation identified the conditions required for integrated care:[91, 92] enabling policy, practical implementation support, learning-oriented accountability, financing that rewards collaboration, dedicated roles, usable shared data and explicit equity policy. It also found that fragmented financing, data incompatibility, workload and variable local capacity impede integration. This is evidence about implementation mechanisms and maturity rather than proof of a single OHT outcome effect.

Ontario Health at Home reports substantial delivery scale and promising service examples, including neighbourhood routing, rapid-response nursing, remote monitoring

https://www.ontariohealth.ca/clinical/primary-care
[89] https://www.ontario.ca/page/ontarios-primary-care-action-plan-january-2025
https://www.ontariohealth.ca/clinical/primary-care
[90] https://news.ontario.ca/en/release/1007897/ontario-connecting-600000-more-people-to-a-family-doctor-or-primary-care-team
[91] https://www.ontario.ca/files/2024-01/moh-oht-hcp-guidance-doc-en-2024-01-22.pdf
[92] https://news.ontario.ca/en/release/1004116/ontario-health-teams-now-providing-care-in-every-corner-of-the-province

and community clinics. These show operational feasibility, but many reported results are programme activity or uncontrolled before-after measures[93]. They should inform design and testing rather than be treated as causal proof.

Hospital-at-home evidence is more mature[94]. Cochrane evidence supports admission avoidance for selected patients when programmes provide hospital-level clinical responsibility, rapid assessment, diagnostics, treatment, monitoring and escalation. Effects vary by population and programme, and home-first care is unsafe if it retains patients whose risk exceeds pathway capability.

Social prescribing has a plausible mechanism and encouraging wellbeing findings, but the international evidence base is heterogeneous and often limited by selection, weak comparators and incomplete economic analysis.[95] Outcomes depend on facilitated

[93] https://www.ontariohealthathome.ca/blobohahprod4cd80afe1b/wp-content/uploads/2025/07/HCCSS-2023-2024-OHaH-2024-2025-Annual-Report-EN.pdf
[94] https://www.cochrane.org/evidence/CD007491_hospital-home-services-avoid-admission-hospital
[95] https://www.allianceon.org/files/Vision_for_a_Health_Home_-_Alliance_for_Healthier_Communities.pdf

connection and the capacity of community organisations, not only the presence of a link worker.

Overall, the evidence justifies staged implementation with baseline measurement, explicit mechanisms, comparator or phased designs where feasible, economic analysis, equity review and independent evaluation. CTM should scale functions only when safety, reliability, workforce feasibility and benefit have been demonstrated.

Implications for CTM design

The Canterbury experience suggests the following practical considerations for CTM:

- Give every neighbourhood or locality team an identifiable population and explicit responsibility for access, continuity, proactive care, unmet need and inequalities.
- Define the neighbourhood health home as a coordinating function and accountability, not automatically a new building, brand, board or statutory tier.
- Use primary care as the clinical anchor while creating a genuinely multidisciplinary core team and an extended network of shared professional expertise.
- Create one access and navigation standard across telephone, digital and face-to-face routes, including warm hand-offs, named coordination for complex patients and closed-loop referral.

The major lesson is that CTM Layers 0 and 2 should operate as one connected neighbourhood system. Prevention identifies need; community relationships enable engagement; multidisciplinary locality teams provide continuing care; home-first services respond to deterioration; information connects the cycle; and higher layers supply diagnostics, specialist intervention and rescue without severing local continuity.

1.8 New Zealand: the Canterbury health system

Strategic relevance to CTM

The Canterbury health system in New Zealand is one of the most studied examples of whole-system integration. It shows how the separate parts of a health and care system can be made to act as one, so that people are kept well at home and the growth in hospital demand is moderated.[96]

Canterbury offers direct learning for locality care, virtual and digital connection, community urgent response and the relationship between community and hospital, as well as prevention. Its distinctive contribution is the connective tissue of an integrated system: a shared financial logic, shared clinical pathways, a shared record and collaborative governance.

Context and drivers

In 2007 and 2008 the Canterbury District Health Board faced clinical and financial pressure. It recorded a deficit of around NZ$16.9 million, had among the longest waits in New Zealand for elective procedures and radiation therapy, and its main hospital regularly reached gridlock.4 Modelling showed that continuing as it was would, by 2020, require an additional 450 acute hospital beds, 20 per cent more general practitioners and 2,000 more aged residential care beds. This was neither affordable nor achievable, and it created the case for change.[97]

The Christchurch earthquakes of 2010 and 2011 damaged hospital buildings and sharpened the need to use resources efficiently, accelerating work already under way.[108] The response was organised around a single unifying idea, that Canterbury was one system with one budget, in which each dollar could be spent only once and problems could not be solved by shifting cost from one part of the system to another

The operating model

The model combines a clear financial logic, investment in the community, strong primary care and a set of enablers that hold the system together. Figure 1.8.1 sets out this structure.

[96] https://www.kingsfund.org.uk/insight-and-analysis/reports/quest-integrated-health-and-social-care
[97] https://www.sciencedirect.com/science/article/pii/S2514664524011901

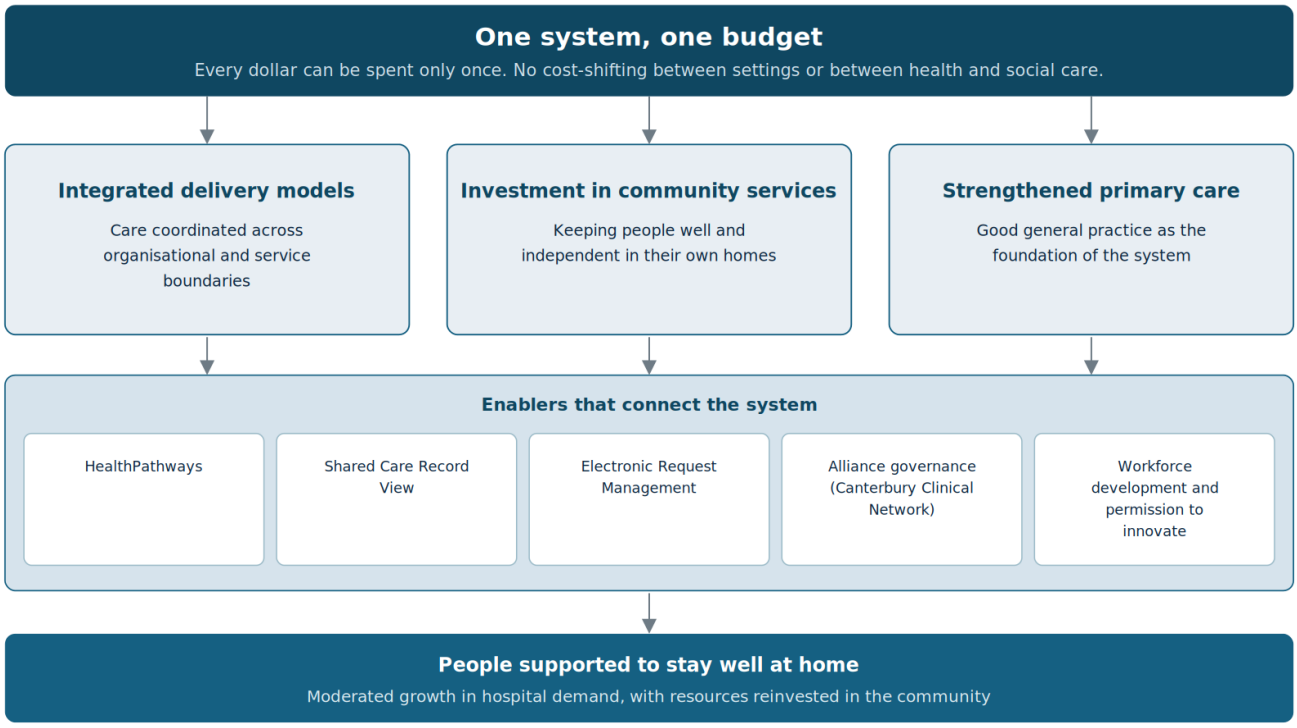


Figure 1.8.1 The Canterbury operating model: one system, one budget

To make the financial logic real, the price and volume schedule that governed payments to hospital departments, the equivalent of the NHS tariff, was scrapped, and departmental budgets were rebuilt from the base.[98] Contracting moved towards an alliance, in which providers share responsibility for the whole system through the Canterbury Clinical Network. The principle of the alliance is that everyone wins or everyone loses together, which removes the incentive to shift cost or risk onto another part of the system.[99]

Alongside this, Canterbury invested in giving staff the skills and the permission to redesign care, and in a set of digital enablers that let clinicians work to the same information and the same agreements across organisational boundaries.

HealthPathways

The most distinctive element is HealthPathways, a web-based set of clinical pathways designed jointly by general practitioners and hospital specialists. First produced in 2008, it sets out locally agreed guidance on how to assess, manage and refer patients for common conditions, together with request pages for tests and specialist advice.[100]

HealthPathways became, in effect, the way care is done in Canterbury. Around 80 per cent of general practice teams use it several times a week, with roughly 1.5 million

[98] https://www.kingsfund.org.uk/insight-and-analysis/reports/quest-integrated-health-and-social-care
[99] https://www.gov.scot/publications/national-care-service-integrated-care-studies-scfnuka-alaska-canterbury-new-zealand-models/
[100] https://ijic.org/articles/10.5334/ijic.3769

page views a year, and it has been credited with contributing to a 43 per cent increase in access to elective surgery.[34] Localised versions have since been deployed across more than 30 health districts in New Zealand, Australia and the United Kingdom, covering a population of over 22 million.[101]

The transferable lesson for CTM is that shared, locally agreed pathways can be the connective tissue between primary and secondary care. They align clinicians around a common approach and reduce the fragmentation that comes from primary and hospital teams working to different rules.

Acute demand management and community services

Canterbury is strong on community urgent response. Its Acute Demand Management Service provides community-based acute care so that hospital is not the default when a person becomes unwell. In its early years the service was associated with a 4.6 per cent fall in emergency department attendance for aligned general practices, against a 7 per cent rise for others, at a cost of around NZ$11.90 per head of population.[102]

This sits within a wider pattern of shifting care closer to home, including support for older people to remain independent. The proportion of Canterbury residents aged over 75 living in residential care fell from around 16 per cent in 2006 to about 12 per cent in 2013, and the trend continued.[103] For CTM, the lesson is to build a genuine community urgent response so that admission is a considered decision rather than an automatic one.

Information and governance

Two further enablers hold the system together. A shared electronic record, the Shared Care Record View, together with an electronic request management system, lets clinicians across settings see the same information. And collaborative governance through the alliance gives clinicians collective leadership over how care is designed, rather than leaving change to contract negotiation alone.[104] The design principle for CTM is that a shared record, shared pathways and shared accountability are what allow separate organisations to behave as one system.

Translation into the CTM Bonsai model

Because Canterbury is a whole-system model, its learning reaches across the Bonsai layers rather than concentrating in one or two. Figure 1.8.2 maps its mechanisms to transferable principles and then to the layers they inform.

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101 https://ijic.org/articles/10.5334/ijic.3769

102 https://www.cambridge.org/core/journals/primary-health-care-research-and-development/article/hospital-avoidance-an-integrated-community-system-to-reduce-acute-hospital-demand/D1216A016D66E72DD4459DF8D82E4270

103 https://www.kingsfund.org.uk/insight-and-analysis/reports/developing-accountable-care-systems

104 https://www.kingsfund.org.uk/insight-and-analysis/reports/quest-integrated-health-and-social-care

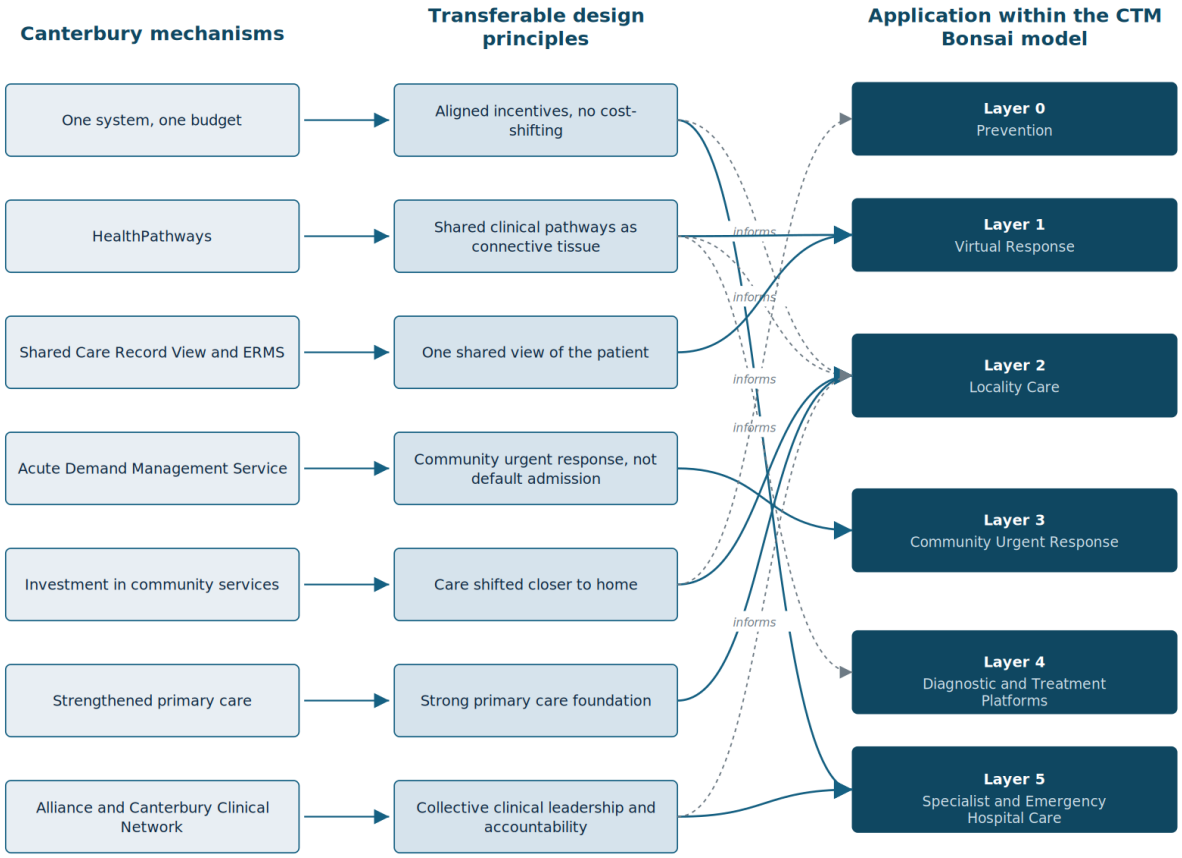


Figure 1.8.2 Canterbury mechanisms, transferable design principles and their application within the CTM Bonsai model

CTM Bonsai layer	Direct learning from Canterbury	Potential implication for CTM
Layer 0: Prevention	Keeping people, especially older people, well and independent at home moderates demand upstream	Invest in community wellbeing and independence as a way of reducing later hospital demand
Layer 1: Virtual Response	HealthPathways, a shared care record and electronic request management connect the system	Build shared pathways and a shared record as the digital connective tissue between settings
Layer 2: Locality Care	Strengthened primary care and community services with care shifted closer to home	Invest in primary care and community services as the foundation of locality care
Layer 3: Community Urgent Response	Acute Demand Management Service provides community-based acute care to avoid admission	Build a genuine community urgent response so hospital is not the default
Layer 4: Diagnostic and Treatment Platforms	Shared pathways and request pages improve direct access to diagnostics and specialist advice	Use agreed pathways to give primary care clearer, faster access to diagnostics
Layer 5: Specialist and Emergency Hospital Care	One budget and alliance governance align hospitals with the wider system rather than divesting from them	Align incentives so hospitals work in partnership with community and primary care, not in competition

Table 1.8.3 Lessons from Canterbury for Strengthening the CTM Bonsai Model

Evidence of impact

Canterbury is associated with a sustained moderation of hospital demand. It avoided the large increases in beds and residential care that its own modelling had projected, supported more people at home, reduced the use of residential care among older people, and improved access to planned surgery.

This evidence should be read with the same care as the other exemplars. Much of it is system-level and observational, drawn from a single health economy over a period that also included major disruption from the earthquakes. It is difficult to attribute the results to any single component, such as HealthPathways or acute demand management, rather than to the combination and to sustained leadership over more than a decade.[105]

Constraints and transferability

The transformation took more than a decade and required sustained investment, which is itself a caution against expecting quick results.[106] From the mid-2010s Canterbury's financial position deteriorated, driven partly by the capital cost of earthquake repairs and a new hospital, but not only by these. By the 2019/20 year it recorded a deficit of around NZ$243 million, the largest of any board in the country, and about a third of all district health board deficits nationally despite serving around 12 per cent of the population. In 2020 this culminated in a governance crisis, in which most of the executive team, including the long-serving chief executive, resigned amid a dispute with the board and a Crown monitor over how to reduce the deficit.[107]

[105] https://www.kingsfund.org.uk/insight-and-analysis/reports/quest-integrated-health-and-social-care

[106] https://www.stuff.co.nz/national/health/124434252/mass-resignation-of-managers-may-have-saved-cashstrapped-dhb-money-chair-says

[107] https://www.stuff.co.nz/national/health/124434252/mass-resignation-of-managers-may-have-saved-cashstrapped-dhb-money-chair-says

Two years later the national context changed entirely. The Pae Ora (Healthy Futures) Act 2022 disestablished all twenty district health boards, including Canterbury, and merged their functions into a single national organisation, Health New Zealand, on 1 July 2022.[108]

The lesson for CTM is twofold. Canterbury shows what integration can achieve, but it also shows that integrated systems need sustained funding, stable governance and protection from financial and structural shocks. CTM should therefore transfer the operating principles, aligned incentives, shared pathways, investment in community care and collective clinical leadership, rather than the specific New Zealand structures, which have since been replaced.

Implications for CTM design

The Canterbury experience suggests following practical considerations for CTM:

- Invest deliberately in community services and primary care to moderate the growth in hospital demand
- Build shared, locally agreed clinical pathways as the connective tissue between primary and secondary care
- Create a genuine community urgent response so that hospital admission is a considered decision, not a default
- Use a shared care record so that every part of the system works to the same information.
- Align incentives and share accountability through collaborative or alliance-style arrangements and collective clinical leadership
- Treat integration as a long-term investment that needs stable funding and governance, not a quick reconfiguration

The notable lesson is that integration is achieved through connection rather than reorganisation. A shared budget, shared pathways, a shared record and shared accountability are what allow separate organisations to behave as one system focused on the person.

[108] https://www.oag.parliament.nz/data/health-reforms/about-health-reform