

NASEM Commissioned Paper:  
Lessons From Other Health Systems for Whole Health

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## INTRODUCTION

Most current health care systems in the United States are fragmented, reactive, impersonal, expensive, inequitable, and do not achieve their stated goals. As such, a movement has emerged, pioneered by the Veterans Administration (VA), to move toward improving health systems by shifting their focus toward Whole Health. In service of this goal, the National Academy of Sciences, Engineering, and Medicine (NASEM) formed a committee to study this area and how concepts and implementation strategies around it can be used more widely in the United States to create health care systems that better meet the needs of the communities they serve. The NASEM committee has developed the following definition for Whole Health:

*Whole Health is physical, behavioral, spiritual, and socio-economic well-being as defined by individuals, families, and communities. To achieve this, Whole Health Care is an interprofessional, team-based system anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person’s life mission, aspiration, and purpose.*

The committee then identified five interdependent, foundational elements of whole health systems that will be used as definitional anchors for this paper: (1) holistic and comprehensive, (2) people-centered, (3) upstream-focused, (4) high quality and equitable, and (5) team well-being-focused (Table 1 below).

<b>TABLE 1. Foundational Elements of Whole Health</b>	
Holistic and comprehensive	Address all domains that impact health – acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care
	Attend to the entirety of a person/family/community’s state of being
	Components and team members are integrated and coordinated
People-centered	Self-empowerment through longitudinal, relationship-based care
	People/families/communities direct goals of care
	Care delivered in social and cultural context of people/family/community
Upstream-focused	Multi-sectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health
	Address the conditions of daily life to make them more conducive to whole health
High-quality and equitable	Whole health systems need to be accountable for the health and wellbeing of people/families/communities
	Care needs to be accessible to all
Team well-being-focused	The health of the care delivery team is supported

This paper seeks to highlight health system approaches in the United States and globally that align with the foundational elements of Whole Health defined in Table 1 above. It will briefly describe innovative approaches that are aligned with these definitions and offer suggestions on how they may provide avenues, ideas, and directions for scaling elements of Whole Health in systems across the United States.

## METHODS

After consultation with NASEM committee members about the goals of the overall report, and upon receipt of the foundational elements above, a brief review of relevant US and global models was undertaken. First, the review started by examining key global repositories of case studies such as those that exist in the World Health Organization's Integrated People-Centered Health Systems unit (IPCCHS), the case study repository of the global consortium known as the Primary Health Care Performance Initiative consisting of WHO, World Bank, UNICEF, Global Fund, Gates Foundation, and others (PHCPI Improvement Strategies), important reviews of integrated care case studies done by the World Bank over the last decade (World Bank China Health Study), and key state, federal, and academic reviews of integrated care in the US. Using a brief snowball sampling method, and cross-referencing successful cases with evidence-based reviews examining their outcomes in the peer-reviewed literature, a total of seven innovative models were identified that shared important characteristics with the foundational elements of Whole Health above. Each model is briefly outlined in approach, history, and structure. Extra attention was paid to details of the Vermont Blueprint model given that it was the only one identified in the US, and potentially has the most relevant potential scaling lessons to offer. Next, core aspects that relate to the foundational elements are discussed and highlighted in *italics*, along with noting foundational elements not emphasized in these models. Then key outcomes studies are highlighted, though it is important to note that this is not an exhaustive review of these models' performance. Finally, cross-cutting themes are drawn out in the conclusion that emerge from this brief review, with attention toward areas of highest relevance to implementing Whole Health models in the United States.

## CASES

### 1. Vermont Blueprint for Health

Established in 2006, the Vermont Blueprint for Health aims to design, implement, and evaluate community-lead strategies for improving health and well-being in the state (Vermont Blueprint). It acts through a combination of strategies, programs, and payment initiatives to connect residents of Vermont with whole-person care that is evidence-based and cost-effective. The foundation of the model and its initial area of focus was on building toward advanced primary care using the patient centered medical home (PCMH) model to meet patient health needs and better coordinate care. Through the provision of a statutory framework act in 2010, the mission of the blueprint for health broadened toward integrating systems of health care, improving overall population health, and improving healthcare cost control through prevention, care coordination, and health maintenance (Blueprint for Health 2022). The core design and implementation of the state program centers on regional networks to test and implement innovations aimed at improving health and well-being. There is a central administrative core at the state level with an Executive Director and central office, but the majority of the work happens at the hospital or health service area (HSA) where administrative entities exist in each of these 13 regions to receive payments, hire and maintain community health teams, and coordinate quality improvement initiatives.

A main area of work for the Blueprint model is the use of advanced team-based primary care practice as a locus for *holistic and comprehensive care*. Medical homes are aligned toward NCQA national PCMH standards and work toward continuous quality improvement through

ongoing engagement with a quality improvement facilitator at each HSA. This facilitator engages them to sustain practice transformation, implement chronic care initiatives, improve population health quality, and aim toward payment transformation and cost reform goals. Practices participating in this model receive augmented monthly payments between \$2 and \$4 per person per month (PMPM) to implement the model. There are also performance payments and bonuses based on healthcare utilization and quality measure attainment. While early efforts focused on PCMH recognition and accreditation, more recent iterations morphed into incorporating broader elements to improve the health of the population, including social determinants of health screening, improved and focused support for patients managing chronic health conditions such as diabetes, asthma and hypertension. Furthermore, improving patient experience and self-management approaches through enhanced medical visits and the use of community-based support resources has accentuated the focus on *people-centered care*. Over the last few years, payment system changes aimed at moving primary care practices away from fee for service and toward prospective risk-adjusted payments were created. A statewide all-payer accountable care organization (ACO) was created to sustain initial implementation of elements of this model, provide incentives for attainment of population health goals, and reduce cost growth.

Augmenting the move toward advanced primary care, community health teams were established in each HSA to support broader provision of work on *upstream factors* that drive community health. Community health teams support practices to identify and address root causes of health issues through behavioral health integration and screening for social determinants of health. They spend considerable effort at the HSA level to connect patients with effective community interventions, support people to manage their chronic conditions, and catalyze community wide well-being initiatives. Community health teams include community health workers, dietitians, care coordinators, panel managers, behavioral health managers, and nurses. Furthermore they are integrated with wider teams aimed at Whole Health including home-based services, food security initiatives, housing resources, and other state and local agencies. Health service areas receive funding from commercial and state insurance to staff these community health team at about \$2-\$3 PMPM. Given the significant and community-identified challenges around substance use disorders and access to women's and reproductive health, further focus has been given to these areas. A hub and spoke medication assisted treatment programs offers enhanced treatments and care management along with behavioral health integration, as well as office-based opioid treatment opportunities. The reproductive and women's health initiatives integrate access to comprehensive family planning and navigation services to help to connect PCMH practices to women's health and reproductive specialty services using referral pathways and networks.

Community health dashboards exist for each of the HSAs and offer baseline and iterative data on population demographics as well as the performance of the community-led strategies, providing *quality and equity* performance assessment. These profiles are based on data from Vermont's all player claims database as well as other reporting systems and includes data from commercial Medicaid and Medicare payers. Finally, through a Center for Medicare and Medicaid Innovation (CMMI) program, Vermont has now added an all-payer ACO model across to catalyze further payment and delivery transformation with the hope to improve health and reduce spending. This program provides flexibility for Vermont to implement an all-payer approach to moving away from fee for service payment toward global spending targets and prospective payment in service of Whole Health goals.

Notably, *team well-being* so far has not been a major explicit focus of the model. While PCMH transformation does accentuate the creation and maintenance of teams that focus on improved function and well-being within the practice, change is often hard especially when combining delivery and payment transitions concurrently (Bitton 2018). Expanding provision of holistic care pathways through community health teams augments tools available for primary care teams to better care for their patients, but not necessarily themselves. Further attention, especially in the wake of the COVID-19 pandemic, around team well-being is necessary.

Evaluations of the Vermont Blueprint model are mandated by the state law establishing it. These evaluations are published annually and focus on primary care delivery transformation, community health team use, and payment for model elements. However, a number of internal and external evaluations have been published showing more summative evidence of model effect. A review of the first 6 years of the model showed that 9 of 11 care effectiveness and prevention measures staying stable or improved, though only 2 were statistically significant in robust analysis (Jones 2016). Using a difference in difference approach showed statistically significant reductions of approximately \$482 in total medical expenditures per person in model participants, with savings driven primarily by inpatient decreases in spending (Jones 2016). Notably, Medicaid beneficiaries had a statistically significant higher rate of spending on social, dental, and community based-support services, as intended by the model (Jones 2016). Cost-benefit analysis of the medication assisted treatment program showed increased enrollment across most HSAs, and between \$1.18 to \$1.66 return on every \$1 spent on the program (Joy and Bellas 2017). Further analysis showed that medication assisted treatment through this model was associated with reduced acute health care utilization and reduced general healthcare expenditures (Mohlman 2016). The Vermont all-payer ACO did not meet its regional or beneficiary enrollment targets in year 1; however, in those beneficiaries who did enroll, spending and utilization was reduced significantly in the first 2 years (NORC 2021).

## **2. New Zealand Canterbury Health Pathways**

The Canterbury District in New Zealand is the second largest in the country, serving an estimated 600,000 people. Most live in the greater Christchurch area and the district has the largest population aged over 75 (Canterbury website). The Canterbury district health board plans and provides services using a whole of health system approach in partnership with health service providers, communities, and the wider New Zealand governmental health strategy. It aligns itself with a clinical care network, a charitable trust, and the wider alliance of district health boards across the South Island of New Zealand. In accordance with its mission to create and improve a health system and community of people taking greater responsibility for their own health, staying well in their homes and community, and receiving timely care, it has a variety of consumer in clinical forwards and councils for meaningful input (Canterbury District 2022).

Canterbury's journey toward integrated care began in 2007 after experiencing bottlenecks in acute inpatient and emergency department care (Timmins and Ham 2013). These capacity constraints resulted in a key policy analysis suggesting that their continuation would require the creation of new major hospitals, steep increases in needed general practitioners and nurses, and thousands of new residential care beds for members of the elderly population. The costs of these proposed expansions in acute and residential care were deemed to be prohibitive and resulted in the creation of an innovation and implementation team trained in quality improvement efforts

and authorized to look across industries and across countries for new models of care (Timmins and Ham 2013). New strategic principles focused on improved self-care, integration of health services including through defined pathways of care, and a whole-of-government approach to promote health were emphasized (Timmins and Ham 2013). These principles translated into sustained investments to create new integrated services along with new contracting mechanisms to pay for them.

Primary care and general practitioners were a main early focus of this work using new agreed-upon clinical standards and referral pathways, as well as district level support outside of practices for nursing, allied health services, mental health, and other care augmentation approaches (Timmins and Ham 2013). These new services were built around alliance contracting for standard care protocols as opposed to previous fee for service visit billing. The best known and most sustained part of the model is called HealthPathways. Built upon a set of guidelines for treatment of common conditions, HealthPathways are consensus-based agreements on best practices for person-centered and comprehensive care created between general practitioners, specialists, and hospital providers (Timmins and Ham 2013). Through painstaking work reviewing over 600 conditions, these providers name and agree on how the conditions should be managed, where they should be managed in and around the system, when they should be referred, and who is responsible with the patient for different parts of the care journey (World Bank 2019; Gullery and Hamilton 2015). Initially developed as a focused project to reduce referral waiting time, they have now grown to be the centerpiece of an integrated approach to health that includes resources and practitioners outside of allopathic healthcare and inclusive of other realms where health is created.

**Figure 1: Pictogram of health care system in Canterbury**



(Source: Timmins and Ham. Quest for Integrated Social and Health Care. 2013)

As such, and seen in figure 1, the HealthPathways are a centerpiece of *holistic and comprehensive care* in the system. Their development and management is inclusive of a variety of consumer, patient, and community perspectives along with a clear vision toward improved self-management of health make them a paragon of *people centered care*. Furthermore, after the creation of the agreements and pathways below, much effort was given to enumerating and supporting *team well-being* across the care continuum. They have increasingly but not substantially started to focus on *upstream factors* through the inclusion of a whole of government approach aligned to the national health strategy. Their greater focus on *equity* is apparent, especially for Maori and Asian populations. However, much work remains to be done.

A number of large reports have analyzed the performance of the New Zealand Canterbury system (World Bank China 2019, Timmins and Ham 2013). A well-known 2013 Kings Fund reports details the development and initial performance of the system, highlighting reduced strain on hospitals in emergency capacity as well as reduced waiting time for elective surgery and other specialty services (Timmins and Ham 2013). Primary care workups and speed of diagnosis has increased through the use of these predefined care pathways. And fewer patients entered residential care settings, meaning more have been able to stay at home (Timmins and Ham 2013). The district has one of the lowest rates of acute medical admissions compared to other health boards in New Zealand and a low average length of stay (Timmins and Ham 2013).

In many ways, as highlighted by practitioners and leaders in the system as well as the Kings Fund report, the system's response to a devastating earthquake in 2011 demonstrated its success and resilience (Timmins and Ham 2013). While most health buildings were damaged and many killed, the integrated structure enabled a robust disaster response with remaining resources. The disaster response accelerated further integration efforts and catalyzed the development of new areas of closer cohesion between the health care and social care systems. As a result, though the district was one of the hardest-hit in New Zealand by the earthquake, they were able to maintain or expand performance indicators in most areas even after the earthquake (McGeoch 2019; Timmins and Ham 2013).

Future further work elucidated and confirmed initial outcome reports. Acute medical admissions have increased at a lower rate than in the rest of New Zealand, declining even further after the earthquake (McGeoch 2019; Gullery and Hamilton 2015). After the institution of an acute demand management program, Canterbury is estimated to have approximately 30% fewer admissions than other comparable New Zealand districts (Gullery and Hamilton 2015). Support for timely discharge to rehabilitative services in the community resulted in 14% decreases in elderly stays over 14 days in acute settings (Gullery and Hamilton 2015). The proportion of people aged 75 years or greater living in residential care homes has reduced by approximately 25% in seven years (Gullery and Hamilton 2015). The overall success of HealthPathways is seen by their deployment to more than 23 systems across Australia and New Zealand and their highlighting in numerous best practice reports on global integrated care (Gullery and Hamilton 2015).

### **3. South Australia Health in All Policies / Integrated Care Adelaide**

South Australia is a state with a population of 1.6 million people predominantly living in and around Adelaide. It has relatively high life expectancy and health outcomes though notable inequities exist especially amongst its Aboriginal and Torres Strait Islander populations. Based

on previous work done at both the WHO and the European Union on the concept of Health in All Policies (HiAP), the South Australian government adopted a HiAP model building on its history of public policy experimentation and innovation (Baum 2019). In 2007, a dedicated department was established within the Health and Aging Department and a set of HiAP processes were sequentially created (Baum 2019). Links were made between the Executive Premier's office and the Department of Health and Aging in order to coordinate intersectoral processes and policies (Williams and Gallicki 2017). Key steps in establishing this HiAP approach were endorsement at the executive level followed by a set of agreements staking out shared responsibilities and collaborations, and the creation of the cabinet level task force on key priorities (Williams and Gallicki 2017). In 2011 the South Australian Public Health Act offered new governance mechanisms and legislative pathways for the HiAP unit to create additional levers and formalize cross-sector collaboration around *upstream factors* that impact health (Williams and Gallicki 2017). Further work established performance and accountability mechanisms for this work to the chief executive branch. Relatively small amounts of funding totaling less than \$1 million per year staffed the HiAP office (Baum 2019).

Areas of focus included upstream factors to address social determinants of health within and outside of the formal health care sectors. Furthermore, communities of practice were established along with policy impact evaluation capacities (Williams and Gallicki 2017). Example areas of work included establishing improved licensing mechanisms for aboriginal drivers in order to offer wider driving training and reduce unlicensed driving that had been associated with higher road accidents (Williams and Gallicki 2017). Other work included work with business communities on sustainable regional community development with mining entities, as well as the establishment of broader investments in healthy park systems for outdoor recreation with the environmental department (Williams and Gallicki 2017). Later areas of focus included access to more nutritious food for children along with new approaches to incorporating health and well-being planning into urban environments (Williams and Gallicki 2017). This iterative approach to intersectoral policymaking incorporating a health lens but not bound to a health care approach resulted in a number of clearly documented policy changes across a variety of sectors (Baum 2019).

In parallel, the South Australian government also invested in integrated care services through the adoption of best practices from inside and outside of Australia along with the eventual creation of an independent government agency in 2020 known as Wellbeing SA to lead cross-government and cross-sector strategies around health and prevention. This agency in some ways grew out of the HiAP approach but also represented further integration with established health care systems focuses on partnering, prioritizing, and delivering evidence-based approaches to improve integration of community-based health care and improve overall population health (Wellbeing SA 2022). Its specific areas of action are currently in mental health and suicide prevention, integrated care for chronic disease, and maternal health. Notably, integrated approaches for *holistic and comprehensive care* encompass the adaptation of HealthPathways models from New Zealand to the South Australian context as well as the creation of advanced primary care practice *people-centered care* capacity and networks known as health care homes to provide better coordinated, more supportive care with and for people living with chronic complex conditions (Wellbeing SA 2022). Finally care integration is promoted through care connection models to improve coordination across the continuum of care, as well as home hospital models to deliver acute care services at home instead of in the hospital (Wellbeing SA 2022).



The evaluation of the South Australian model success has been much more robust in the area of HiAP than it has in the area of integrated health care services. A five-year study using mixed methods consisting of qualitative, quantitative, policy analysis, and survey instruments, found that the South Australian HiAP approach improved overall population health, based on a lengthy and theoretically sound analysis approach to evaluating complex public interventions that connect governmental and community sectors together (Baum 2019). It enabled new elements of state government departments to incorporate health as a priority in rulemaking and financing, helping new resources to flow to previously under-emphasized policy areas (Baum 2019). Limitations were found in quantifying exactly what the population health and life expectancy impact of these policies and programs were due to their multisectoral action, and lack of a clear control group. But the sum of the mixed methods evidence suggested by this independent evaluation was that clear policy and population level changes were likely attributable to the program, resulting in likely downstream health improvement (Baum 2019). Other governmental reports also came to similar conclusions (Williams and Gallicki 2017). What is less clear is the impact of recent integrated care initiatives on outcomes. This dynamic is likely due to the fact that the integrated care programs are newer and perhaps not as fully melded into the health in all policies work. Notably an analysis of the HiAP program suggested that it did not improve *equity* in South Australia and that much work remained to be done in this area (van Eyk 2017). Little evidence exists that *team well-being* has been a major focus of the work to date.

#### **4. Basque Country Integrated Chronic Care Model**

The Basque Country is an autonomous community in Northern Spain with the population of approximately 2.2 million people. Health organization and planning powers rest with the Ministry of Health, while the provision of public health care services lays with the Basque Health Service known as Ostakidetza. In 2010, the health system created an integrated care strategy to manage the challenge of rising chronic diseases, focusing on the following five areas (Alvarez Rosete and Nuno-Solinis 2016). A population health approach used risk stratification methods to identify targeted patients with chronic conditions. Prevention and health promotion efforts aimed to address risk factors for these common prioritized chronic conditions such as heart failure, diabetes, and chronic obstructive pulmonary disease. Self-management approaches toward better self care in the community were emphasized using a patient autonomy framework as well as leveraging patient networks of people who shared conditions in common (Alvarez Rosete and Nuno-Solinis 2016). Integrated electronic records along with standardized care pathways, referral mechanisms, and connections to social care accentuated both continuity and coordination of care (Alvarez Rosete and Nuno-Solinis 2016). Electronic visits and e-prescriptions allowed more connection to patients in the community and research on care innovations to occur (Alvarez Rosete and Nuno-Solinis 2016).

These interlinked approaches used a theoretical basis of the chronic care model as well as integrated delivery system theory to build a strategic framework for two approaches around integrated care implementation. What is known as a bottom-up approach focused on clinical integration and coordination of care processes between primary and secondary care especially around the care of patients with complex chronic conditions (Polanco 2015). New healthcare professionals such as nurse care managers were positioned and funded to enable better coordination and transition of care, and clinical pathways were designed for common chronic conditions such as heart failure, diabetes, and chronic obstructive pulmonary disease (Polanco

2015). Local innovative priorities were sought and attempted to be spread to wider parts of the Basque country. A second part of the integration plan was more top-down, focused on merging primary care and hospital affiliated entities under single organizations known as integrated healthcare organizations (IHOs) beginning in 2011 (Polanco 2015). These IHOs were created to serve geographically-bounded communities of patients. By the end of the first phase of integration, a total of 13 IHOs were built across the Basque country. The sum of these integration efforts focused primarily on making *people centered care* more available throughout the Basque Country. They also had to use these novel organizational and funding mechanisms to provide a wider array of *holistic and comprehensive care* in particular for patients with complex needs. Complex care management and transitions of care strategies were emphasized, and more comprehensive approaches were taken inside and around primary care settings to improve continuity and coordination of care in the five areas identified above. Both centralized and local approaches were used to iterate on recurrent cycles of quality improvement (Polanco 2015).

The largest areas of structural and process improvement were seen in the measured domains of health system organization, healthcare model development, information systems, and self-management approaches (Polanco 2015). Key areas of outcomes improvement included levels of satisfaction with care coordination and integration of health and social care (Polanco 2015). Over four years, hospital admissions were reduced by 7% in one of the early IHOs, with readmissions reduced by 24% (Polanco 2015). These changes were even more pronounced in patients with chronic or multiple complex conditions (Polanco 2015). No cost differentials were seen as a result of this intervention. The impact on care for older adults was analyzed in a separate analysis of a different IHO, and found that amongst older patients with comorbidities, integrated care models reduce acute health utilization through strengthened primary care offerings and better coordination of care across the system units (Mateo-Abad 2020). These decreases in utilization at the hospital level amongst integrated care members were statistically significant as were increases in utilization of primary care services as well (Mateo-Abad 2020). User feedback in qualitative analysis was demonstrably positive especially around care coordination (Mateo-Abad 2020). During the COVID-19 pandemic, health integration processes that have been in place for nearly a decade resulted in improved resilience and flexibility of the healthcare system in the face of health shocks (Izagirre-Olaizola 2021). Little information is available regarding sustained efforts to improve *team well-being*, *equity*, or *upstream factors*, as this initiative seemed to be focused on integrating health- and health care-related services.

## **5. Singapore Regional Health Systems and Agency for Integrated Care Initiatives**

Singapore is a sovereign city state in Southeast Asia with a population of nearly 5.7 million people. It has a system of universal health coverage enabled through mixed government, employer, and individual contributions focused notably on higher levels of individual health savings account usage. With an aging population requiring increased coordination of care, and significant outcome inequities between rich and poor residents, Singapore has recently focused on three areas to improve care outcomes for elderly: expanding care opportunities at home, improving transitions of care from hospital to the community, and improving quality and value through integrated health and social care. In 2009, the Agency for Integrated Care (AIC) was created to coordinate and guide efforts toward care integration especially for elderly populations with complex and increasing needs (Ong 2018). The AIC built programs to seamlessly connect health care and social needs of aging members of the population in a *holistic and comprehensive*

way across the health landscape and with social service organizations that were previously fragmented from the outpatient care system (Ong 2018).

Concurrently, health system transformation efforts within Singapore aimed to address the challenges of aging populations and fragmented care through the creation of regional health services (RHS) to integrate hospitals, primary care, specialty care, and social services in geographically distinct areas of the city-state (Ong 2018). Notably, hospitals remain the central organizing entity for RHS regions, potentially exerting a dominant effect on the rest of the network. Thematically, the RHS reforms centered on integration, innovation and *people-centeredness* (Ong 2018). Particular emphasis has been made on ensuring better transitions of care from the acute care setting with follow up in the community. A number of initiatives have been made to improve the provision of primary care for older members of the Singapore population, especially those who are poor. The creation and expansion of polyclinics, which can be thought of as large team-based PCMH clinics for acute, chronic, rehabilitative, and preventive needs in poorer areas was one initial focus area. These clinics have a high volume of visits with lower or no costs to individuals representing an initial attempt to improve equity by expanding care offerings for poor elders, and making care more *people-centered*. However, much of the population including the elderly still see primary care providers in small offices that are not connected to any larger health systems or IT infrastructure, and which subsist on fee for service payments and the onsite sale of pharmaceutical medication and supplies. The government has built a community health assist scheme to subsidize the cost of these patients' primary care visits and to encourage its provision of higher quality primary care as a first contact point instead of bypassing toward specialty care. Geriatric hubs that connect webs of social and health care and coordinate prevention initiatives often through senior care centers or aging at home programs have also been built into regional health system framework to improve the provision of care.

Initial evaluations of these programs suggest a mixed effect of the integration efforts. An initial study found that short term reductions of hospital and emergency room readmissions up to 50% were achieved (Low 2015). However, a better designed randomized controlled trial in the highest risk patients found no statistically significant changes in utilization in the transitional care arm; notably, though patient satisfaction in the intervention increased significantly (Lee 2015). Subsequent analyses of integrated community dementia care programs have shown significantly improved patient health utility, reduced patient behavioral disruption and depression, reduced caregiver burden, and higher cost effectiveness when compared to medication or institutional treatment (Ha 2020). Shifting care from hospital to outpatient community specialty clinics did not result in targeted system or patient-level outcomes as low fidelity to the proposed intervention was achieved (Nurjono 2020). However, integrating behavioral health into primary care for mild to moderate depression did show significant improvements in the pilot sites (Teo 2021). Little emphasis exists around *equity* beyond the provision of polyclinics in poorer areas of Singapore, and little focus has been placed on *upstream factors* or *team well-being*. The hospital and specialty-centric focus of the Singapore health system and its constituent financial and political power may explain a lack of emphasis on these tenets of Whole Health.

## 6. Germany: Gesundes Kinzigtal Model

Gesundes Kinzigtal is a healthcare management company in the Southwest German Black Forest area that was launched in 2005 to care for members in its region. The company is made up of a cooperative agreement between a large physician network called MQNK, a health management and services company called Optimedis, and two large statutory health insurers in the region (Hildebrandt 2010). The Kinzigtal model focuses on integrating health and social services through a novel private partnership in order to improve patient experience, population health outcomes, and reduce overall cost of care. It operates from the opportunity created by merging health insurance coverage schemes with nonprofit clinical networks and an overlaying management approach that connects private health and social service sectors (Marill 2020). The Kinzigtal entity allows contracted shared savings initiatives to be built between the two insurers and the healthcare management company in order to provide incentives to better manage care, improve cross-sector integration, and reward improved outcomes instead of utilization volume (Marill 2020). Long-term ten-year shared savings contracts allow the right time horizons to make needed investments and see the returns on more integrated care in order to share them between organizational entities in the community. With a particular focus on members with multiple and complex chronic diseases, as well as a *people centered care* emphasis on improved self-management both within and around the healthcare sector, the model has seen important innovations and results over its 17-year time course.

In many ways, this model is analogous to an advanced ACO in the US that also maintains a strong focus on social service integration. Like the ACOs in the US, the model is voluntary for people in the region as well as for providers. A majority of doctors in the area as well as about 1/3 of eligible patients participate (Marill 2020). Cost benchmarks that include all national age and health adjusted costs help to mitigate risks of healthier patient selection into the program (Marill 2020). The model was built over more than a decade through laborious and painstaking negotiations, enabling higher levels of trust and cohesion between the entities that now participate in this program. The success of the program has allowed investments in non-healthcare infrastructure to promote *holistic and comprehensive care* such as gyms, health academies where patients engage in education classes, and group sessions for amplifying the ability of people to manage common chronic conditions together outside of the medical arena (Marill 2020). The focus on making the program worthwhile for both patients and clinicians has led to a distinct area of emphasis on making clinician practice more doable and creating more time and space in the day for clinicians to do the work that they were trained to do with their patients. The doctor network has incentives to stay involved given their 2/3 stake in the company. The savings they have been seeing on a yearly basis have been invested back into the program to improve its offerings, especially around electronic health record innovations and service offerings. Physicians have also used the savings to build extra time into their schedule to engage in broader conversations around shared decision making, as well as to hire other health professionals such as nurses, physiotherapist, and social workers to help patients achieve their self-management goals (Marill 2020). Thus, *team well-being* has been an important emphasis of the initiative.

However, its voluntary basis and position in a relatively wealthy region of Germany means that a focus on community *equity* has not been the mainstay of the program. Furthermore, while there is connection to integrated social services, there has been less emphasis on addressing *upstream factors* through intersectoral approaches aligned with government or other areas.

Reviews of the evidence on this program have shown results that skew toward better financial performance with mixed quality and experiential outcomes. In each of the years since its inception, the program produced cost savings (Marill 2020). Some significant improvements have been seen in key quality indices, compared to control groups, with an independent analysis suggesting improvements in six out of the 18 measures (Shubert 2016). In terms of health outcomes, patients in the model who live with osteoporosis were shown to have lower absolute risks for fractures, and overall participants in the program were seen to have lower rates of mortality than comparison patients (Schubert 2016). Over 90% of surveyed participants would likely or definitely recommend this model to others (Siegel 2018). Further independent analysis showed that two of five measures of overuse and two of 10 measures of underuse showed statistically significant improvement in the intervention group (Siegel 2018). A 10-year evaluation by independent researchers with a control group design found that the majority of claims-based quality indicators, 88 out of 101, showed no difference overtime compared to controls. Improvement was seen in six indicators and decreases were seen in seven indicators (Schubert 2021). Overall, no summative quality of care differences were found (Schubert 2021). So while within the confines of the shared savings contract yearly parameters indicate the achievement of common efficiency and quality targets (suggesting perhaps up to \$7 billion in savings over 10 years (Marill 2020)), broader independent evaluation points to a more mixed picture. A separate analysis of patient experience found no changes in satisfaction over time, but a nearly 20% increase in improvement of those reporting that they “lead an overall healthier life” consistent with a model focus on patient activation and motivation for better self-care (Siegel 2018). It remains to be seen whether this model that grew out of an idiosyncratic and difficult to replicate set of conditions in this region can be easily adapted elsewhere.

## **7. Costa Rica: EBAIS Community-Based Primary Health Care Model**

Costa Rica is an upper-middle income country in Central America with population of approximately 5.1 million people. While the country has a long-standing commitment to improving rural primary healthcare, in the 1970s and 1980s they were stymied by an economic downturn and increasing complexity in the system resulting in unmet needs across communities. As a result beginning in 1994 the Equipo Básico de Atención Integral en Salud (EBAIS) model was begun (van der Zanden 2021). This approach builds multidisciplinary care teams assigned to a geographically empaneled group of people in each area across the country. Each team includes a doctor, nurse, technical assistant that acts as a community health worker, medical clerk, and a pharmacist who provide comprehensive acute, chronic, and preventive care both at a clinic as well as in homes within the community. The average team cares for approximately 4500 patients and are located within health areas that serve between 50,000 and 100,000 people (Pesec 2017). In addition to providing first contact access for arrange of primary healthcare needs, the EBAIS teams conduct regular proactive population outreach, visiting each household at least once per year to conduct social, demographics, and other health needs surveys as well as to register patients in their families in a geolocated electronic health record that is available on mobile platforms in a secure manner (van der Zanden 2021). This integrated health record is used to help track and improve the care journey for patients as they access *people-centered care* across each different layers of the healthcare system. In addition, the integrated record stores both healthcare and social information, often enabling teams to be able to jointly address both health care and *upstream factors* in their visits either at home or in the clinic (PHCPI 2022). The

teams also regularly conduct health education and integrated social referrals work with other social agencies enabling the patients and communities to have a singular point of contact for the majority of their health and social needs. The model, which has been iterated successively over the past nearly 30 years, is able to provide *holistic and comprehensive care* for the entire population including previously marginalized members of indigenous communities who live in rural areas, and undocumented migrants who live primarily in your urban areas.

The keys to this model include a combined approach from the Caja, the centralized single payer and provider entity that provides healthcare services in concert with the Ministry of Health which provides public health and social needs services (Pesec 2017). Geographic empanelment to a defined team such that every person has a team as a focal point for their care is also critical. Rigorous and sophisticated data feedback loops, including summative performance data on a variety of quality of care and utilization measures along with unmet social needs data allow the system to manage the performance of health areas with high levels of precision, and devote extra resources to help the areas that might face more poverty or other social barriers to improved *equity* outcomes (Pesec 2017). Finally, long-term political and financial commitment to the development and improvement of the system has resulted in steady and impressive outcomes achieved over time.

These outcomes primarily show in effectiveness, efficiency, and patient experience. Substantial and sustained maternal and infant mortality rates have decreased since early 1990s and life expectancy is currently the third highest in North America. Clear improvement in access to care became apparent between 1994 and 2000, with the proportion of the population without equitable access to outpatient care dropping by nearly 1/3 (Rosero Bixby 2004). Not only is total life expectancy higher in Costa Rica than the US, but also the concomitant middle age death rate (amenable to health and social system factors) is 30% lower in Costa Rica (Gawande 2021). And older people also survive on average longer in Costa Rica – at least 1 year more for those aged 60 (Gawande 2021). Remarkable efficiency for these health gains is apparent with these improved outcomes achieved at approximately 10% of the cost of total per capita health spending in Costa Rica compared to the United States (van der Zanden 2021). Health equity in Costa Rica rivals amongst the top performing countries in the world, and chronic disease outcome measures show high levels of control. Relatively less focus has been placed, though, on *team well-being* and the ability to sustain these expansive, wide-ranging care models.

## CONCLUSION

This brief review of promising Whole Health approaches to care provides a number of lessons for those wishing to adapt and scale these models. It is apparent that there are clear directions toward success but no standard recipes. Whole health is still more of a collection of converging approaches that have succeeded in optimized environments as opposed to a strong evidence base and implementation pathway for one particular model. There is much promise in learning from the success of the regions above, but even within them, key evidence implementation gaps remain in order to fulfill their promise.

Key tenets for success do emerge, though. First, each model has a clear and identified approach to strengthening primary care (and primary health care) at its core. These models are based on advanced, team-based, IT-enabled primary care teams that work inside and outside clinic walls to coordinate care and improve outcomes. But notably, Whole Health models are not

synonymous with good PHC, and not limited to it alone. Second, these approaches to Whole Health combine essential team-based advanced primary care with public health interventions and often, a health in all policies perspective to complement person-centered integrated care. We see though, in the example of South Australia, that a HiAP policy focus alone is not enough; it must be combined with substantial integrated health services approaches. Similarly, the promise of successful integrated care models in the Basque Country, Singapore, and Germany is likely being limited without effective connections to HiAP approaches that address upstream and equity issues that are at the core of so many health challenges.

Third, utilizing a regionalized method for integration both across health care systems and between health and social care is important. This regionalization aims to serve a defined population of people often with chronic conditions, whose progress is tracked with core quality, experience, and utilization measures. These models need an integrating approach to combat the entropic forces of fragmentation, and an integrating entity at their core. They often work best at the small state/small region/defined locality level; entities under 4-6 million or smaller appear to be more manageable. Successful work as an integrating entity requires a strong but flexible bureaucracy open to innovation and public/private partnership. These models must be able to iterate, be agile, and utilize continuous improvement toward a common set of aligned goals, with significant consumer buy in and advice along the way. Canterbury demonstrates the power of the district health board to iterate toward a common goal with continuous consumer buy-in. When integration models are regionalized, though, aggregating control of these initiatives often devolves into traditional health care power centers like hospitals and hospital-based specialists (as seen in Singapore), who may impede the provision of Whole Health. Conversely, use of geographically defined, non-hospital based government or community entities that distribute community health resources (such as in Vermont) may provide a more effective way to scale Whole Health models, but do require clear and careful governance and stakeholder buy-in.

Fourth, integrated care necessitates robust and sustained financing mechanisms that pool risk, and are mostly but not always publicly financed. Paying for integration most often requires using a base risk adjusted capitated payment with significant infrastructure additions. Performance payments are possible additions, but alone may not be aligned to eventual long-term attainment of model goals. While each model has to have a clear financing mechanism, payment alone cannot direct the model, nor costs alone used to judge its end outcomes.

Fifth, evidence for these models is often sparse or mixed. It is challenging to evaluate these models given that comparison and control groups are difficult to construct. This work requires a long timeline, and often means undergoing multiple changes at the same time. Definitive evidence of success is frustratingly limited, and requires multi-method, multi-modal approaches that delve into complex utilization, quality, survey, and social institutional databases, while also incorporating consumer and political economy analysis approaches.

Sixth, model success requires significant long-term investment in Whole Health as a public good. Explaining and building political and public will toward this long-term goal takes skill and time on the part of model integrators and leadership, along with establishing ongoing buy-in from an informed public who knows what is being created and why. Can this happen without a common consensus and definition of health built together with communities? Achieving this vision of Whole Health in a fragmented and often binary political environment in the US may happen more often in smaller, highly cohesive areas like Vermont or SouthCentral Foundation in Alaska that can move together toward common goals as opposed to broader

polities. It is hard to see competitive hospital-based ACOs alone move toward this model in the current health care landscape without 1) fundamental financials of health care changing 2) increased community and political cohesion around common goal of better health and 3) strong and accepted integrator able to move from advocacy to policy to practice change.

Seventh, successful models need an equity strategy and approach that incorporates addressing upstream factors as drivers of inequitable and unacceptable poor outcomes. Equity is a key buy-in lever for the populations served, and for health care providers. To improve it requires building tracking layers through data systems and clear prioritization of equity along with other model goals.

Eighth, successful models must be able to focus on team well being, especially in the wake of COVID at a time of high burnout. A notable majority of the models identified did not have clear strategies in this area. A Whole Health approach has potential to ignite a recommitment of providers to the practice of health care and could be an answer for burnout by reconnecting health care workers to original purpose of care as a calling, and removing some of the layers of depersonalization and churn that burden workers. But team and worker well-being has to be prioritized for this goal to be realized.

Finally, the spread of these models may necessitate the notion of Whole Health to be initially disconnected from one side of the political spectrum or the other. Whole Health is not the singular purview of progressive political environments (though it commonly exists there); Singapore and Germany show that consumerist or market-based environments can innovate toward Whole Health, making the case for Whole Health along the lines of pragmatism (spending scarce health resources before people get acutely ill) or common community benefit, especially for elderly or those with chronic conditions. That said, attunement to definitional elements of equity, upstream health factors, and health worker well-being align with core concepts of fairness, justice, and respect for others, making the ultimately achievement of Whole Health still fundamentally a set of value choices and community priorities that are ultimately political and socially cohesive in nature.



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