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Primary Health Care That Works: The Costa Rican Experience

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ABSTRACT Long considered a paragon among low- and middle-income countries in its provision of primary health care, Costa Rica reformed its primary health care system in 1994 using a model that, despite its success, has been generally understudied: basic integrated health care teams. This case study provides a detailed description of Costa Rica's innovative implementation of four critical service delivery reforms and explains how those reforms supported the provision of the four essential functions of primary health care: first-contact access, coordination, continuity, and comprehensiveness. As countries around the world pursue high-quality universal health coverage to attain the Sustainable Development Goals, Costa Rica's experiences provide valuable lessons about both the types of primary health care reforms needed and potential mechanisms through which these reforms can be successfully implemented.

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The United Nations Sustainable Development Goals, adopted by countries around the world in 2015, have established high-quality universal health coverage as a top priority in global health.[1] Achieving that coverage effectively, equitably, and affordably will require strong primary health care, and many countries are undertaking reforms to strengthen their primary health care systems.[2] Shown to improve specific outcomes such as infant mortality and hospital admissions, primary care has also been associated with improved overall population health.[3–8] Furthermore, evidence suggests that countries can achieve equitable, high-quality primary care for a low per capita cost.[7,9]

However, the vast majority of health systems—in countries at all income levels—do not achieve the potential benefits of primary health care. Further impeding progress toward strengthening that care globally is the fact that most details of successful design, implementation, and scaling up of primary care in low- and middle-income countries have been understudied. Thus, the lessons that have been learned are largely inaccessible to policy makers through the literature.

To address some of these gaps in the literature, we present a detailed examination of Costa Rica's primary health care system, a well-recognized "positive deviant." A middle-income country with a population of 4.8 million, Costa Rica has the third-highest life expectancy in the western hemisphere (behind only Canada and Chile), at seventy-nine years.[10] Measures of maternal mortality (25 per 100,000 live births), infant mortality (8.5 per 1,000 live births), and under-five mortality (9.7 per 1,000 live births) are all low and have decreased consistently over the past twenty-five years.[10] Among low- and middle-income countries, Costa Rica performs in the top 10 percent on critical indicators of effective primary health care coverage and high-priority health outcomes, such as the proportion of children who receive appropriate diarrheal treatment and adult mortality from chronic diseases.[11] Remarkably, Costa Rica achieves this quality while spending less than the world average for health care, both per capita (US

$970) and as a share of gross domestic product (9.3 percent).[10]

Foundational to Costa Rica's primary health care system is its Equipo Básico de Atención Integral de Salud (EBAIS, or basic integrated health care team) model, which was initiated in 1995. In the early 1990s Costa Rica's primary health care system was suffering: The global economic downturn in the 1980s had drastically increased Costa Rica's debt, and austerity plans cut funding to the country's primary health care programs—resulting in low public satisfaction and quality of care.[12–15]

In response, Costa Rica undertook a major reform of its health care system in 1994. The reform emphasized creating a new, robust primary health care delivery model—multidisciplinary EBAIS teams, each of which would serve a geographically empaneled population—that could provide the four critical functions of primary health care: first-contact access, comprehensiveness, continuity, and coordination.[16,17] The reform organized Costa Rica's primary health care system into seven health regions, each of which contains approximately a dozen health areas (geographically similar to counties). Within ten years, Costa Rica had not only designed and implemented a new national primary health care system, but it had also seen real results. In the first twelve years after the reforms, the proportion of the population with access to primary health care increased from 25 percent to 93 percent,[18] and in the first seven years after the reform, infant and adult mortality declined significantly (by 8 percent and 2 percent, respectively).[19]

Despite these successes, the EBAIS model and its integration into the primary health care system have been underexamined in the literature. When the model has been studied, scholars have generally credited much of the success of Costa Rica's health system to the country's unique contextual factors, such as its historical commitment to universal health coverage, its specific political environment, and particular health policies.[20] Indeed, since 1949 Costa Rica has enjoyed a stable parliamentary democracy,[14] maintained no armed forces, and invested heavily in social spending on health and education to promote equity.[21] However, as demonstrated by the declines in health system performance during the economic downturn of the 1980s, these contextual factors alone cannot account for Costa Rica's remarkable success.

At a time when many countries with highly varied policy and development contexts are searching for ways to strengthen their primary care systems, the particular service delivery reforms that drove Costa Rica's achievements, and how the reforms were implemented and strengthened over time, deserve further study. In this case study, we examine generalizable lessons from Costa Rica's EBAIS model. In particular, we describe the innovative implementation and execution of four service delivery reforms (Exhibit 1) that underlie Costa Rica's success and that, we posit, could be successfully adapted and replicated in other contexts.

Study Data And Methods

To conduct this case study, we performed an in-depth review of the English- and Spanish-language literature, supplemented by a series of interviews with key informants. We searched relevant electronic databases—MEDLINE, LILACS and Scielo, all of which contain Spanish-language material; EBSCO; Global Health; and Google Scholar—for all articles containing the phrase *Costa Rica*. We considered articles relevant if they addressed the structure, evolution, or performance of Costa Rica's health care system. The MEDLINE search returned 3,970 articles, of which 179 were relevant, and the LILACS search returned 900 articles, of which 135 were relevant. Collectively, the remaining databases returned approximately a dozen relevant studies. After accounting for duplication, we analyzed the full text of 280 unique articles. In addition, we identified and reviewed approximately two dozen other sources by examining reference lists.

To supplement this literature review, we interviewed corresponding authors who provided e-mail addresses, and we used snowball sampling to identify additional informants. In addition to this network of academic professionals, we conducted interviews at five Costa Rican clinics in two health regions: Pacifico Central and Central Sur. While not statistically representative of all seven health regions in Costa Rica, the clinics were purposefully chosen to include rural (Tarcoles EBAIS Clinic, in Tarcoles) and urban (Hatillo EBAIS Clinic, in San Jose, and Jaco EBAIS Clinic, in Jaco) areas that serve impoverished (Coopesiba EBAIS Clinic, in Barva) and wealthy (Coopesana EBAIS Clinic, in Escazu) populations. We interviewed a convenience sample of health care providers and administrators at each clinic, based on their availability during our visit.

In addition, we conducted follow-up online interviews with Costa Rican contacts. In total, we conducted twenty-eight interviews: nine with academic authors and nineteen with health care professionals in Costa Rica. Our analysis included published and government outcomes where available, but it was limited by the lack of publicly

EXHIBIT 1

Costa Rica's critical reforms in health care delivery

Reform	Details
Integration of public health services and primary health care delivery	What: The reform transferred public health and primary care functions from the Ministry of Health to the CCSS, which already was providing secondary and tertiary care, so that one agency was responsible for all aspects of health care provision. This administrative integration of preventive and curative services facilitated the vertical and horizontal integration of care. How: Personnel transfer and internal reorganization of the CCSS occurred in 1995.
Multidisciplinary teams	What: Each EBAIS team is a single care delivery unit capable of providing comprehensive and coordinated primary health care. Each team consists of a doctor, a nurse, a technical assistant (similar to a community health worker), a medical clerk, and a pharmacist. How: The formation of multidisciplinary teams has occurred iteratively since 1995 as new EBAIS clinics were established.
Geographic empanelment	What: Based on where they live, all citizens are empaneled—that is, assigned to an EBAIS team. Each team has a panel of approximately 4,500 patients. Empanelment promotes first-contact access and continuity of care over time. How: As the first EBAIS teams were established, each was assigned a geographic area with approximately 4,500 patients. The first teams were established in the most medically underserved areas, so formation of the teams generally moved from the most rural parts of the country to the capital, thereby promoting equity.
Measurement and reliable data feedback loops	What: EBAIS teams collect data from their empaneled populations. These data are then sent to the health area (equivalent to a county) and then to the CCSS. The CCSS collates data and feeds that information back to the health areas and thence to the EBAIS teams, so they can assess their performance against targets established through management contracts with the CCSS. If a health area falls short of its goals, it creates an action plan to achieve its target the following year. How: The path to the current measurement system was not linear. In 1998, three years after the first EBAIS team was established, Costa Rica introduced management contracts, a modified pay-for-performance system. This system was rejected by many physicians and did not fit the ethos of medicine in the country. In 2008 the CCSS eliminated the financial incentives that had been tied to performance. Today EBAIS teams work to achieve their targets as part of their professional responsibilities.

SOURCE Authors' analysis. **NOTES** CCSS is Caja Costarricense de Seguro Social, the Costa Rican social security agency. EBAIS is Equipo Básico de Atención Integral de Salud, or basic integrated health care teams.

available or published patient experience data.

The Brown University Institutional Review Board determined that this study did not meet human subjects research criteria.

Study Results

INTEGRATION OF PUBLIC HEALTH SERVICES AND PRIMARY CARE DELIVERY Before the 1994 reforms, responsibility for delivering health services in Costa Rica was divided between the Ministry of Health and the Caja Costarricense de Seguro Social (CCSS, or Costa Rican social security agency). Founded in 1941 and charged with "providing health and pension benefits" to enrolled workers,[22] the CCSS focused on the provision of curative health services at all levels of the health care system. The Ministry of Health, founded in 1922,[22] was primarily responsible for public health functions and the provision of some basic primary health care.[23]

The 1994 reforms transferred responsibility for the provision of all public health, preventive, and curative services from the Ministry of Health to the CCSS.[16] The transfer was hardly simple. The CCSS gained 2,325 new staff members, 1,700 of whom came directly from the Ministry of Health.[16] Ideological differences between the two institutions persisted: The Ministry of Health argued that prevention and community-oriented public health—which had been its priorities—were underrepresented, while the CCSS generally continued to prioritize curative services and specialized care (Jorine Muiser, associate researcher, University of Costa Rica, online interview, February 2016).

Still, the presence of Ministry of Health "champions" of public health and preventive services within the more curative care–oriented CCSS ensured that neither preventive nor curative services overshadowed the other in the new EBAIS model. Bureaucratic integration at the highest levels of the health care system enabled the CCSS to manage service delivery more efficiently and ensured the vertical and horizontal integration of public health, preventive care, and curative care. Few countries have achieved this level of integration at the national level. To begin to match all of the functions of the CCSS, for example, the United States would need to merge the Centers for Disease Control with the Department of Veterans Affairs and the Centers for Medicare and Medicaid Services. The success of the bureaucratic merger in Costa Rica allowed the country to build its new primary health care system.

MULTIDISCIPLINARY TEAMS The heart of that system is the multidisciplinary EBAIS team, a single care delivery unit capable of providing comprehensive and coordinated primary care.

Each team comprises a physician, a nurse, an *asistente técnico de atención primaria* (technical assistant, similar to a community health worker), a *registros y estadísticas de la salud* (medical clerk), and a pharmacist.

The physician is responsible for providing curative and preventive care, including the diagnosis, treatment, and management of acute and chronic conditions (Carlos Monge, EBAIS physician, Tarcoles EBAIS Clinic, in-person interview, January 2016; Karolina Sandi Rojas, head nurse, Jaco health area, in-person interview, January 2016). The nurse is generally responsible for basic clinical tasks and health counseling. The technical assistant is responsible for health promotion activities, disease prevention, epidemiological data collection, basic sanitation activities, identification of disease risk factors, and referrals to EBAIS physicians or hospitals. Additionally, while doctors and nurses typically see individual patients and families in EBAIS clinics, technical assistants conduct both individual home visits and group visits in community settings such as churches, schools, and town centers. The medical clerk is responsible for patient intake, patient data collection and management, and epidemiological population health surveillance. Finally, the pharmacist is responsible for dispensing prescribed medications.

This horizontal integration of public health, preventive care, and curative care within EBAIS teams results in primary care that is comprehensive. Team members provide all but the most specialized care to their patients, including health education, medications for acute infections, and management of chronic diseases. Because of their comprehensive nature, in 2014 EBAIS teams provided three-quarters of all medical consultations in Costa Rica and cared for approximately 80 percent of Costa Ricans' health needs.[24,25]

In addition, the teams enable effective care coordination within primary health care through frequent and detailed communication with each other about specific care gaps and patient needs. For example, if a mother fails to arrive at an EBAIS clinic for a scheduled visit, the technical assistant can conduct a home visit to follow up and assist in scheduling a new appointment. When technical assistants make home visits, they address hygienic concerns and even some housing concerns, improving social determinants of health and helping overcome barriers to care. This horizontal integration at the level of the EBAIS team is enabled by the aforementioned integration at the bureaucratic level. If team members were paid and managed by different organizations, they would not be able to share responsibilities as effectively.

The horizontal integration of service delivery at all structural levels of the health care system helps drive the success of primary care in Costa Rica.

Similarly, if the responsibility for the teams lay with an organization that primarily emphasized curative care, preventive care would likely not play an equal role. This horizontal integration of service delivery at all structural levels of the health care system helps drive the success of primary care in Costa Rica.

GEOGRAPHIC EMPANELMENT Geographic empanelment, the process by which patients are assigned to primary care providers or care teams, is a critical mechanism for promoting first-contact access and continuity of care. During the 1994 reforms, Costa Rica pursued empanelment by establishing health areas, the geographic unit by which primary health care is delivered. Today there are 104 health areas in the country, each of which contains 30,000–100,000 patients and approximately ten EBAIS teams (Jorge Mora Acuña, administrator, Hatillo Health Area, in-person interview, January 2016).[25,26] All people within a health area are assigned to an EBAIS team based on where they live. Costa Rica aims to assign each team a population of 4,500 patients; currently, each team manages an average of 4,549 patients.[22,25–27] Health areas are further organized into seven health regions, with six to thirty-two health areas per health region.[26]

Geographic empanelment helps individual patients achieve reliable first-contact access, in which a member of the primary health care team is the first health care professional to see patients for most nonemergency health-related issues. By 2000 Costa Rica had established over 400 EBAIS clinics to serve its population.[28] However, the physical clinic building is much less crucial than the team itself. In urban areas like the capital, San José, it is common for one building to house as many as six EBAIS teams. In the most rural areas, a single team will travel outside

Geographic empanelment to EBAIS teams is the foundation for Costa Rica's use of measurement for improvement.

of the clinic weekly to provide first-contact access for even the most remote populations (Monge and Mora Acuña interviews).

Empanelment also ensures a reasonable ratio of patients to clinicians, and as a result, wait times at EBAIS clinics are relatively low. Most EBAIS teams are available for same-day appointments with sick patients and can make appointments for patients with chronic diseases in advance (Monge and Mora Acuña interviews). The community work of the technical assistants further extends the accessibility of the EBAIS team beyond the walls of its clinic. In 2012 the CCSS reported 94 percent team coverage;[29] by 2015 the CCCS had created twenty more teams.[26]

In addition, geographic empanelment provides patients with more continuous care. Each EBAIS team is a stable team of providers who are equipped and trained to provide primary care across the patient's lifespan, from prenatal to geriatric care. The teams use different treatment protocols for children, adolescents, adults, and the elderly, further broken down by sex, incorporating important preventive measures for each life stage and tracking within the clinical record whether services are delivered effectively. For example, the childhood protocol emphasizes growth monitoring, while the adolescent protocol emphasizes the prevention of sexually transmitted infections. By the time a clinician needs to address potentially sensitive subjects, longitudinal care has often enabled the team to build a long-term, trusting relationship with the patient.

MEASUREMENT AND RELIABLE DATA FEEDBACK LOOPS Geographic empanelment to EBAIS teams is the foundation for Costa Rica's use of measurement for improvement, as this geographic delineation provides an underlying organizational structure for data collection and use. In addition to their community-based work, technical assistants are data collectors, visiting homes of residents empaneled to their EBAIS team to create a census of households (which, in turn, is used to adjust the empanelment system) and to perform epidemiological surveillance. During home visits, technical assistants take anthropometric measurements, measure vital signs, review home safety and sanitation, conduct health education, identify familial behavioral and environmental risk factors, vaccinate people, and refer patients to EBAIS clinics or hospitals, as necessary (Mora Acuña interview).[24,26] They record their data in a family file, including the risk score for each household that they determine is appropriate—a score used to determine the frequency of future home visits (Monge, Mora Acuña, and Sandi Rojas interviews).[26]

Once a technical assistant collects these data, the medical clerk is responsible for collating and sending them—along with data derived from his or her own clinical administrative responsibilities—to the health area administration. The health area, in turn, aggregates the data and sends them to the CCSS headquarters. This "upward" cascade (from local to national levels) ensures that national policy makers receive detailed population health data on all Costa Ricans.

The cascade works in reverse as a data feedback mechanism via management contracts—agreements negotiated yearly between each health area and the CCSS to specify targets for the following year. The CCSS uses EBAIS-collected data to assess a health area's performance against its target measures and then works with each health area to create an action plan to improve that performance each year. EBAIS teams execute the action plans created by the health areas. Though the targets set in management contracts are not tied to financial incentives, the CCSS may take disciplinary action if a health area fails to make adequate progress on its action plan (Monge and Mora Acuña interviews; Melvin Morera Salas, Office of Health Services Purchasing, CCSS, in-person interview, January 2016).

Early experience with the management contracts—which were modeled on a pay-for-performance strategy—showed mixed results and acceptance by providers.[30] However, since 2008 the CCSS has shifted away from a strict pay-for-performance model (which emphasized process measures, used financial rewards, and could be gamed) toward an outcomes-based approach with feedback that targets systems improvement (Mora Acuña and Morera Salas interviews). While there is heterogeneity across health regions, this new strategy appears to be associated with greater provider acceptance of management contracts. For example, previous

measures for diabetes centered on processes of care (such as retinopathy screening). In contrast, today there is a single measure for diabetes care: the proportion of people diagnosed with diabetes who have achieved control of their diabetes as measured by a hemoglobin A1c test (Morera Salas interview).

This streamlined national measurement and feedback loop enables the Costa Rican primary health care system to proactively assess and address high-priority health needs of nearly all Costa Ricans, as opposed to only reacting to the immediate needs of those who visit a clinician. Such a population health approach underlies the horizontal integration of preventive, curative, and public health services within each EBAIS team. By knowing exactly who they must care for, how well they are providing care to that population, and what their plan is for improving that care in the coming year, members of a team can effectively direct their resources and efforts to maximizing population health.

At the national level, the CCSS uses data collected by each technical assistant and medical clerk to identify at-risk areas and target resources to improve health equity. For example, the poorest quintile of the population currently receives almost one-third of the health care dollars. As a result, premature mortality (measured in potential years of life lost) for this quintile decreased by 48 percent from 1980 to 2000, compared to a 39 percent decrease for the richest quintile in the same period.[20] In a 2009 analysis, geographic region was not associated with any increase in infant mortality, which suggests that there was high regional equity. Our interviews confirmed that the CCSS has prioritized reducing inequity in health throughout the country (Morera Salas interview).[31]

Lessons Learned From The Costa Rican Experience

The four service delivery reforms highlighted here are not Costa Rican inventions. Indeed, at various times all four have been tested or advocated as strategies for creating high-quality primary health care around the globe.[32] Yet in most low- and middle-income countries, these strategies have not been well implemented or successfully scaled up to the national level, diminishing their potential benefit. For example, family health teams in Brazil are similar in some ways to EBAIS teams, relying on community health agents who carry out some tasks similar to those of technical assistants.[33] However, compared to Brazilian community health agents and community health workers in many other models around the world,[34] technical assistants are unusual in their level of professionalization, in-depth training, responsibility for community data collection, and degree of integration into primary health care teams. Furthermore, few primary health care multidisciplinary team structures have been implemented at a national scale, as is the case in Costa Rica. For example, family health teams in Brazil were implemented only in the most disadvantaged areas of the country.

Geographic empanelment to a specified care team encourages the formation of relationships that continue over time.

Other reforms such as geographic empanelment have been tried in some countries. However, most countries have failed to move beyond the simple assignment of patients to primary health care providers to generate true population health management with accountability for patient outcomes. For example, Turkey has successfully implemented basic geographic empanelment over the past two decades. But it has not paired empanelment with formal data feedback loops, integrated curative and preventive care, or multidisciplinary teams—all central tenets of the EBAIS model.[35]

While the examples of Brazil and Turkey show that some of the strategies implemented in Costa Rica have the potential to be implemented in other low- and middle-income countries, they also underscore Costa Rica's unique success in combining and successfully implementing concurrent service delivery reforms. What is novel about the Costa Rican case, therefore, is the implementation of the four highlighted strategies in a way that enabled them to be effectively, efficiently, and reliably executed on a national scale.

We posit that the innovative way in which Costa Rica has implemented reforms of primary care delivery has provided the four foundational functions of strong primary health care: first-contact access, comprehensiveness, continuity, and coordination.[17] Multidisciplinary teams—supported by bureaucratic integration—enable

the provision of coordinated and comprehensive care across public health, preventive, and curative services. Geographic empanelment to a specified care team provides patients with a first point of contact for the majority of their health needs and encourages the formation of relationships that continue over time.

This case study has also highlighted how the combination of bureaucratic integration, multidisciplinary teams, and geographic empanelment enabled Costa Rica to establish robust local measurement and multilevel feedback loops, which make it possible to collect data for tracking progress toward targets, allocate resources to areas most in need, and continually improve service delivery and equity—activities shown in the literature to be essential drivers of quality.[36]

Conclusion

By offering a detailed description of one country's successful innovation to integrate and implement service delivery reforms across its population and provide the four essential functions of primary health care, we hope we have also provided potential strategies that other countries can use to strengthen their own primary health care systems. By adapting and adopting the integrated set of service delivery reforms that Costa Rica innovatively implemented, and by focusing on quality, equity, and measurement for improvement, other countries can begin to build primary health care systems that will facilitate the achievement of health for all. ■

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