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The Health care Situation of People with Diabetes in Costa Rica

Costa Rica is located in Central America, bordered to the north by Nicaragua and to the south by Panama. It is flanked by two oceans: the Atlantic to the east and the Pacific to the west. Its territory covers 51,100 km², and its geographical location grants it only two seasons: dry and rainy. The capital is San José, situated on the central plateau of the country. The estimated population for 2025 is 5,278,000 inhabitants. Its geography includes four mountain ranges, peaks reaching nearly 4,000 meters in height, and several volcanoes, some of them active, such as the Poás Volcano. Costa Rica is one of the 25 most biodiverse countries in the world, with an estimated 6% of known species inhabiting its territory. The services sector is the most important component of the Costa Rican economy. Costa Rica is a presidential republic and is considered one of the strongest democracies in the region. In 1948, it became the first country in the world to abolish its army (1).

Life expectancy at birth is 83.53 years for women and 78.57 years for men, matching the average of the Organization for Economic Cooperation and Development (OECD). Infant mortality stands at 10.55 per 1,000 live births (2).

HEALTH CARE FOR ALL

Inspired by the papal encyclical Rerum Novarum (1891), politically active sectors promoted, for the first time in 1907, a draft law requiring business owners to compensate workers in the event of an accident. In 1925, the first Insurance Bank was established, a state monopoly that covered work-related accidents exclusively (3).

In 1941, the Legislative Assembly passed the Constitutive Law of the Costa Rican Social Security Fund (CCSS), which since then has been responsible for health care nationwide. A tripartite solidarity system was established, financed through regular contributions from the state, employers, and workers. However, the goal of achieving universal health coverage remains distant. Over the decades, health services expanded throughout the country. National hospitals were built to treat high-complexity cases, along with specialized hospitals (pediatric, obstetric-gynecologic, geriatric, psychiatric, and rehabilitation), regional hospitals, peripheral hospitals, local clinics, and Basic Comprehensive Health care Teams (EBAIS). Today, however, about 40% of the economy is informal. Although these individuals do not contribute to health insurance, they are treated without restriction in emergency services when facing serious illness. Yet, they do not contribute toward the Disability, Old Age, and Death (IVM) pension system, also administered by the CCSS (4). Each national hospital provides care to a specific geographic catchment area, which does not coincide with the administrative division by provinces. Unlike in many Latin American countries, in Costa Rica the Ministry of Health does not provide direct medical care. Instead, its role is primarily preventive, and it is regarded as the governing authority of national health.

CURRENT SITUATION OF DIABETES IN COSTA RICA

According to the latest edition of the International Diabetes Federation (IDF) Diabetes Atlas, Costa Rica currently has 375,700 adults (aged 20–79 years) with type 2 diabetes mellitus (T2DM), corresponding to a 10% prevalence. Additionally, 26.4% of people with diabetes remain undiagnosed. The country also has 4,772 individuals with type 1 diabetes (T1DM), and the prevalence of prediabetes (IGT, diagnosed by oral glucose tolerance test) is 10.9% (5).

Local estimates from the CCSS Cardiovascular Risk Factor Survey are less optimistic: in 2018, the prevalence of T2DM was 12.7%, rising to 14.8% in 2023. On average, 19,985 new cases of diabetes are diagnosed each year, equivalent to two new cases every hour (6).

Data on T1DM, mainly from the National Children's Hospital (HNN), are older. In the final decade of the 20th century, the incidence rate of T1DM was 3.14 new cases per 100,000 children under 15 years per year. By 2014, the incidence had risen to 4.3 new cases per 100,000 children under 15 years per year, and for the first time, alarming figures were recorded for T2DM in children and adolescents: 5.3 new cases per 100,000 children younger than 15 years per year. The prevalence of T1DM has been estimated at 0.02% (7).

CARE OF PEOPLE WITH DIABETES IN THE CCSS

It is difficult to determine precisely what proportion of patients with diabetes are managed within the CCSS public health services. Some receive care exclusively in the private sector, while a considerable number receive mixed care, combining public and private services. For example, periodic laboratory tests may be performed in the CCSS, while diabetes »

COSTA RICA IN FIGURES	
POPULATION	5,278,000 inhabitants
AREA	51,100 km^2
FOUNDING OF THE COSTA RICAN SOCIAL SECURITY FUND (CCSS)	1941
ABOLITION OF THE ARMY	1948
LIFE EXPECTANCY AT BIRTH	83.53 years (women), 78.57 years (men)
INFANT MORTALITY	10.55 per 1,000 live births
PREVALENCE OF TYPE 1 DIABETES MELLITUS	0.02% (estimate)
PREVALENCE OF TYPE 2 DIABETES MELLITUS	14.8%
INCIDENCE RATE OF TYPE 1 DIABETES MELLITUS	4.3 new cases per 100,000 children younger than 15 per year
INCIDENCE RATE OF TYPE 2 DIABETES MELLITUS	19,985 new cases per year

Sources: see tex.

IT IS DIFFICULT TO ESTABLISH PRECISELY WHAT PROPORTION OF PATIENTS WITH DIABETES ARE TREATED IN THE PUBLIC HEALTH SERVICES PROVIDED BY THE CCSS (COSTA RICAN SOCIAL SECURITY FUND)

medications are purchased privately, yet lipid-lowering or antihypertensive medications are prescribed by public health physicians. Of note, the arrival and expansion of multinational companies in the last 15 years have also increased access to private health insurance, as required by corporate policies.

Like any health care system, CCSS services face enormous care pressure. In primary care (EBAIS), at least 70% of people with T2DM are treated. Appointments usually occur every three, four, or six months depending on metabolic control, and are almost always handled by general practitioners. Once enrolled in the "chronic disease management program," patients are guaranteed continued follow-up. Secondary care (local clinics, regional hospitals) covers 20–25% of patients with diabetes, with variable appointment frequency, provided by general practitioners, family physicians, internists, geriatricians, and occasionally endocrinologists.

Tertiary care is concentrated in national hospitals and managed exclusively by specialists. Only 5% of patients with diabetes are seen at this level, mainly those with microvascular complications, amputations, coronary or cerebrovascular disease, or other comorbidities. Pediatric patients with T1DM are treated at the National Children's Hospital until age 15. Although there have been initiatives to create national referral guidelines, in practice each hospital applies its own criteria.

» DIABETES TREATMENT

Medical care is complemented by nutritionists and diabetes nurse educators in national hospitals and at the HNN. Several hospitals also have specialized diabetic foot clinics.

At the HNN, patients have access to continuous glucose monitors, insulin pumps (currently around 10–15 patients), and basal and prandial insulin analogues. Although access is limited, the number of patients benefiting from these technologies is increasing. Pilot programs with glucose sensors and insulin pumps have also started in some national and regional hospitals to expand access for adults with difficult-to-control diabetes. All T1DM patients, pregnant women with diabetes, and some individuals with T2DM have access to glucometers, though the number of monthly test strips is restricted. The HNN previously had injectable glucagon, but its use was discontinued after the manufacturer left the country.

The CCSS formulary includes metformin, glibenclamide, gliclazide, NPH insulin, regular insulin, and basal/prandial insulin analogues (usually glargine U100 and lispro). With special authorization, dapagliflozin may be prescribed for heart failure with reduced ejection fraction and for chronic kidney disease in patients with or without diabetes.

In the private sector, a wider range of therapies is available, though some are not yet accessible: pioglitazone, alogliptin, ertugliflozin, U500 regular insulin, ultra-rapid aspart, ultra-rapid lispro, insulin icodec, insulin degludec/liraglutide co-formulation, oral semaglutide, and tirzepatide.

Costa Rica lacks large-scale studies on metabolic control quality and diabetes complications. Pilot studies (unpublished) found that glycemic control, measured by HbA1c, was similar between primary care and specialists—unsurprising, as both groups rely on the same therapeutic arsenal within the CCSS, with specialists typically managing more complex cases.

The DISCOVER registry evaluated physicians' motivations for escalating from monotherapy to combination therapy in uncontrolled T2DM patients. In Costa Rica, 127 privately treated patients were included, with a mean age of 57 years; 56.7% were hypertensive, 65.6% had HbA1c above 7%, and 84.7% had LDL cholesterol above 70 mg/dL (8).

CHALLENGES IN DIABETES CARE

In recent years, and worsened by the COVID-19 pandemic, diabetes care in national hospitals has been far from optimal. Services are overwhelmed, wait times for initial specialist appointments can stretch for months, and the CCSS relies on generic drugs without bioequivalence. Available treatments need to be expanded in line with current scientific evidence.

This regressive trend has led many specialists to resign from the CCSS to practice exclusively in the private sector, a phenomenon that will worsen waiting lists and deeply impact the training of new specialists in the medium and long term.

All medical care within the CCSS is recorded in a national electronic health record system (EDUS). In theory, this tool should allow comprehensive monitoring of diabetes care: frequency of visits, organ status, metabolic control, and treatments. Such a situational analysis would enable evidence-based decision-making and a nationwide strategy to improve diabetes management. D

CONCLUSIONS

Costa Ricans consider the CCSS the cornerstone of the country's social peace. Currently, however, the institution faces enormous challenges in transforming itself into a modern and efficient health care provider. These changes must include how we address noncommunicable chronic diseases, particularly diabetes.

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