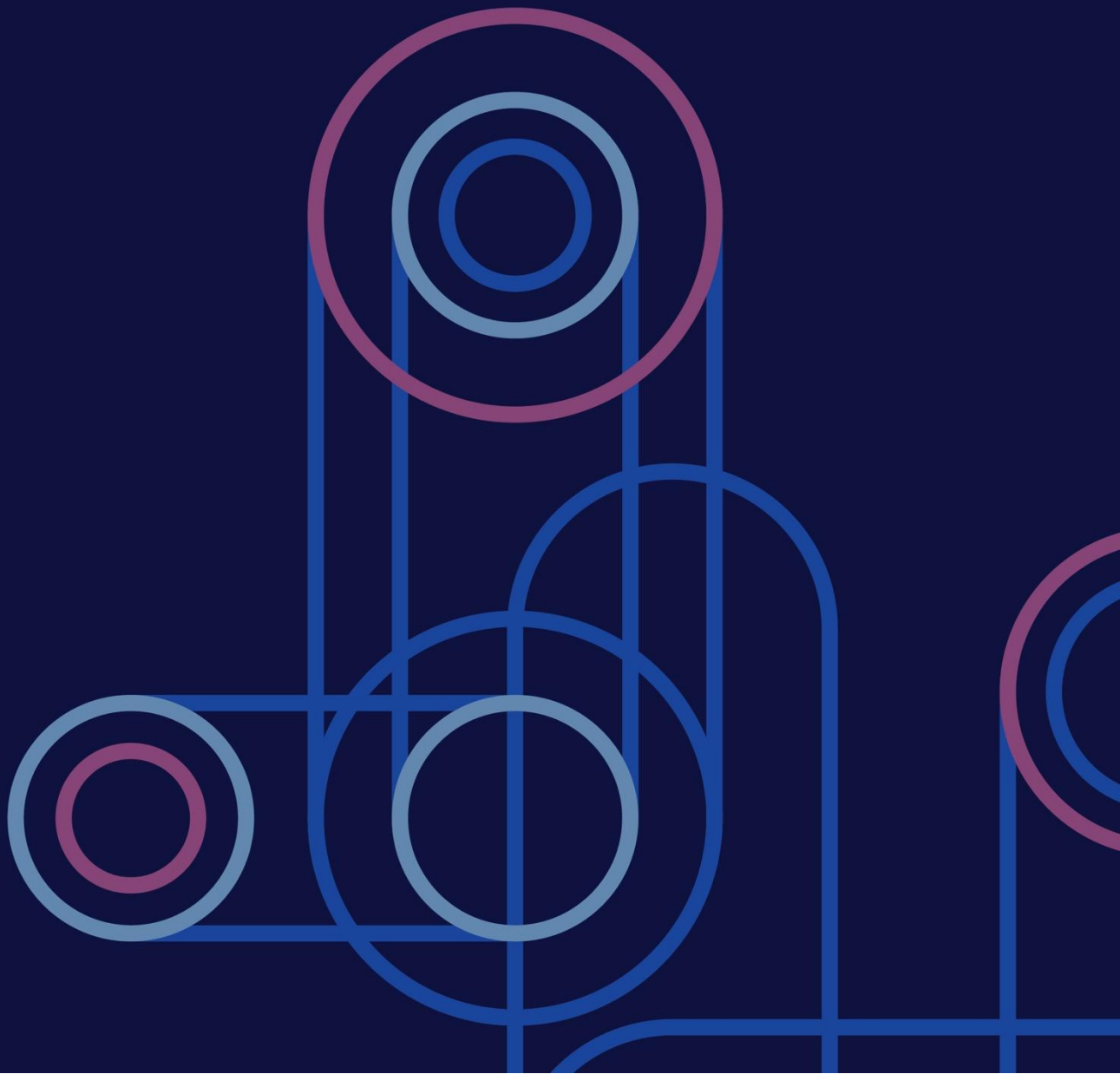
World Health Organization

CASE STUDY

Driving toward equity: the AMORE project

2025



Basic information	
WHO Region	AMRO
City or Country	Cali, Colombia
Timeline	2020-2024
Type of intervention	Data and planning tool
Primary level of implementation	City
Primary sectors involved	Health; transport; urban planning; information and communication technology; academia; data sciences; NGOs and civic organizations
Primary health outcomes or challenges	Inequitable access to essential services due to spatial and mobility barriers and traffic congestion; smart city implementation

Case description

Cali, Colombia – one of South America's most traffic-congested cities – faces persistent inequities in access to essential health services. For example, residents in peripheral and low-income areas experience long and costly journeys to reach specialized treatment facilities. Traditional, static analyses of service coverage often masked these disparities, creating an unjustified sense of adequacy in planning. Recognizing this, the Análisis espacial con Macrodatos para Orientar Resultados en Equidad (AMORE) Project was launched in 2020 to provide a more accurate, dynamic understanding of how traffic congestion affects geographic accessibility and equity, to identify the one or two strategic locations where new services would maximise accessibility, assess the extent to which these would reduce inequities, and estimate potential accessibility gains from an equity perspective.

The AMORE platform – developed by a consortium of more than fifty local and international collaborators, data scientists from IQuartil SAS, academics from Universidad del Valle, and key informants from various cities, service providers, patient representatives, and civic organizations – combines travel-time big data (Google

Traffic congestion in Cali, Colombia. © AMORE Project / Luis Gabriel Cuervo. CC BY-NC 4.0.

Distance Matrix API) with open sources such as the national census, the health services registry, and transport analysis zones to generate traffic-sensitive accessibility indicators with an equity perspective. The interactive platform, developed with inputs from knowledge users and a people-centered approach, is widely comprehensible. Its cartographic displays, simple graphs, and descriptive statistics are easy for non-specialised parties to communicate and share, facilitating their use in public policy discussions and deliberative dialogues with diverse sectors and community members. By adjusting travel-time thresholds and traffic levels, absolute and relative figures can be generated for the city, its sectors, and different demographic profiles, including comparisons between baseline assessments and predicted accessibility gains when new services are added in locations that maximise urban accessibility. This process goes beyond the assessments typically offered by dynamic accessibility studies to identify actionable solutions.

Three tracer services – ambulatory hemodialysis, radiotherapy, and tertiary emergency care – were used to demonstrate the platform's capacity to inform planning. Analyses of data from two individual week-long periods in 2020 showed that residents of eastern Cali and outlying peripheral areas face the longest travel times, often exceeding 30 minutes during peak congestion, whereas central areas are better served. Optimization models indicated that adding new service sites in one or two strategic locations could greatly improve accessibility, reducing average travel times to levels observed during free-flow hours and bringing most residents within 20 minutes of these essential services during daytime and under congested conditions.

Beyond its technical contributions, AMORE's participatory ethos was central to its development. Stakeholders from mobility departments, planning agencies, health service providers, and community organizations were involved throughout conceptualization, testing, and interpretation of the findings. Many reported a newfound appreciation for how transport and land-use decisions shape health equity. Graduate-level research projects expanded the scope of the work by comparing AMORE indicators with conventional equity measures, exploring stakeholder perceptions, and examining approaches to improve knowledge translation.

Enablers of the project included strong academic–government collaboration, a flexible open-data approach, and the visibility gained through international innovation challenges. Barriers centered on limited financial and technical resources, data-standardization needs, and fragmentation within the health services network, which can slow adoption. Despite these challenges, AMORE outputs have already informed revisions to Cali's Plan de Ordenamiento Territorial (Land Use Plan) and contributed to the 2024–2027 Development Plan. The results also suggest additional applications, such as supporting the development of fairer transport subsidies for patients who require frequent treatment.

By converting abstract mobility data into human stories and actionable visualizations and recommendations, AMORE has reframed geographic accessibility as a public health priority. The experience demonstrates how interdisciplinary collaboration, people-centered design and open communication can generate practical insights for more equitable urban systems. It also illustrates the importance of embedding sophisticated analytics – presented in simple and accessible ways – within inclusive decision-making processes. The next phase of the project – integrating indicators into city monitoring frameworks and SDG-linked observatories – aims to institutionalize these advances and make dynamic accessibility a standard metric for urban health equity.

Strategic Highlight

The AMORE Project shows how integrating multiple data streams – mobility, demographics, and health service networks – can uncover inequities that static averages

conceal. By using realistic travel times and open-source data, AMORE has transformed how urban planners, health authorities, mobility experts, and communities perceive the geography of opportunity in Cali. The platform's capacity to simulate improvements under different congestion or service-placement scenarios offers the possibility of evidence-based negotiation across sectors.

As Cali continues to confront the challenges of congestion, rapid urban growth, and persistent spatial inequities, AMORE offers a practical model for integrating data-driven insights into routine planning. Its open-data foundations, participatory development, and transparent communication tools make it adaptable to other cities facing similar constraints, as well as to other transportation modes or services. By turning complex information into actionable evidence, the initiative supports more equitable, participatory, and resilient urban health systems planning.

The implementation of the project underscores the fact that sophisticated analytics are valuable only when embedded in inclusive decision-making processes. AMORE's stakeholder assessment indicated that cooperation, allowing the data to guide interpretation, enabling knowledge users to test diverse scenarios, and sustaining trust are as vital as algorithms in advancing equitable urban outcomes. The next phase of the project – integrating indicators into monitoring frameworks and SDG-linked observatories – will seek to institutionalize this transparency, making dynamic accessibility a standard metric for urban health equity.

Further Information

- AMORE project: About us
- Driving Towards Equity | Vision 2023 for the AMORE project [video]
- Improving equity using dynamic geographic accessibility data for urban health services planning
- Dynamic geographical accessibility assessments to improve health equity: protocol for a test case in Cali, Colombia
- Infographic and map: AMORE project in Cali, Colombia