

# Improving spatial accessibility to health care services in Cali, Colombia: stakeholder assessment of an innovative platform

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## ABSTRACT

**Objectives.** To (i) ascertain stakeholders' perceptions of the contextual factors and resources necessary to successfully implement the AMORE platform, a tool that provides accessibility assessments for health care services, considering factors such travel time and traffic conditions, and (ii) identify potential barriers to and facilitators for enhancing spatial accessibility to health care services within the Colombian urban context.

**Methods.** In this qualitative study, semi-structured interviews were conducted with a purposive sample of seven key stakeholders. The sample was drawn from individuals involved in development of policies in Colombia, service providers, and users, among others, who had expertise in the field. Interviews were conducted until saturation was reached.

**Results.** The participants had positive views on the appearance of the AMORE platform, highlighting its user-friendly visualization. Suggestions were made about the variables used in the dashboard, the implementation of the platform, potential usage areas, and barriers and facilitators to implementation and use. Barriers included economic, political, and personnel challenges, while facilitators included creating a minimum viable product at a low cost and building interinstitutional and international cooperation.

**Conclusions.** Innovations such as the AMORE platform have the potential to support decision-making processes across various sectors, including public policies and internal processes within private organizations, academia, and the community. However, implementing such a tool has financial, contextual and environmental challenges. The study identified key factors that were considered prerequisites for successfully implementing the AMORE platform in Colombian cities.

## Keywords

Health services accessibility; city planning; health services research; Colombia.

Access to health care refers to the opportunity to reach and obtain health care when a person or a group of persons perceives the need (1). It is a central factor in the performance of health care systems worldwide. There are multiple definitions

of this concept (1), yet most of them recognize that access involves the timely use of services according to need. Access to health care encompasses many dimensions. Access to health services has been described as having four main dimensions,

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each with a supply-and-demand element: spatial accessibility; availability; financial accessibility; and acceptability (1, 2). These dimensions of access can influence and interact with each other during an episode of illness and when individuals seek health care services. For example, the geographic availability of services can interact with the affordability of transportation, ultimately determining a person's access to those services.

The spatial accessibility dimension can be defined as the ease with which a particular location can be reached from another using a given transportation system (3–5). Spatial accessibility can vary over time due to changes in transportation infrastructure, traffic congestion, or shifts in the population distribution across locations (6, 7).

Spatial accessibility is a determinant of health care access, especially in low- and middle-income countries (2). An inverse relationship exists between the distance or travel time to health care services and the use of these services; when services are located far away, this deters the use of them, making it a barrier to health services accessibility. If health centers are remote or scarce, then more time and money are spent on travel-related expenditure, all of which act as obstacles to obtaining care. This issue is particularly pronounced among low-income individuals (2, 8, 9).

The availability of big data measuring travel times in cities worldwide has improved substantially in the past 2 decades (10). Consequently, these data sources offer promising opportunities to undertake assessments of spatial accessibility (6). For instance, a case study in 2022, focusing on the city of Zhengzhou, China, a primarily urban center, aimed to evaluate spatial accessibility using new technological tools to identify areas lacking sufficient community-level health care services. The study found that 60.4% of residents could not reach a community health center within 15 minutes. However, after using an optimization system, they proposed the establishment of 60 new health care centers, which could increase the percentage population coverage by 35% and reduce the average travel time to 10 minutes (11). It is worth noting that these new types of studies are still limited and more information in other geographic settings is needed.

Colombia has more than 51 million people and some of the largest urban centers in the Latin American and the Pacific region (12). Colombian cities have some of the highest traffic congestion levels in South America (12). In particular, the city of Cali has been ranked as the fourth most congested city in the region. This congestion is primarily the result of a disconnect between the territorial policies of the 20th century and the reality of the city in the 21st century (13). In Cali, dynamic accessibility measurements for health care services are lacking (10). Furthermore, existing assessments are geared towards specialized audiences and are therefore unsuitable for informing policy decisions (14). The AMORE platform was developed to address these challenges (15).

The AMORE platform was created as part of the AMORE Collaborative Research Project in 2020. Its primary aim is to enhance equity in access to essential health care services (16) by providing easily understandable metrics for stakeholders, including urban planners, health care service providers, and mobility planners. AMORE stands for *Análisis espacial con Macrodatos para Orientar Resultados en Equidad*, which translates in English to *Spatial Analysis with Big Data to Guide Equity Outcomes*. The platform enables participation in data-driven deliberative

dialogues and exchange of information. The overarching vision of the AMORE Project is to support the modernization of urban planning by providing a flexible strategy that can be adapted, replicated, expanded, and implemented across a broad range of environments and in public services where dynamic assessments of geospatial analysis are helpful (15).

The AMORE platform comprises dashboards and visualizations that provide descriptive indicators to assess dynamic accessibility. It was tested with three case studies in health care services: hemodialysis, radiotherapy, and emergency services (15). The platform measures urban accessibility based on travel time intervals and traffic conditions, ranging from free flow to peak traffic. Accessibility measurements can be filtered by sociodemographic characteristics (16). The AMORE platform also predicts accessibility when adding services at one or two locations that optimize accessibility (16).

The potential use of the AMORE platform to improve accessibility to health care services has been suggested in previous studies (15–17). Some previous studies of the AMORE platform have said that it has the capacity to identify 1–2 location(s) where new services would place most of the urban population within 20 minutes of a hemodialysis service by car. These identified locations would cover a specific geographic area and population, known as the catchment area. Additionally, the platform provides proxy measurement and new data to inform health service planning and a strategy for reducing inequities in accessibility (17).

Despite the development of the AMORE platform, no studies have evaluated its functionality or its potential use in decision-making processes aimed at enhancing spatial accessibility to health care services from the standpoint of stakeholders. Many methodologies have been proposed to evaluate stakeholder perspectives of health innovations (17–19). For this reason, this study aimed to (i) ascertain stakeholders' perceptions of the contextual factors and resources necessary for the successful implementation of the AMORE platform; and (ii) identify potential barriers to and facilitators of enhancing spatial accessibility to health care services within the Colombian urban context.

## METHODS

This study was an exploratory qualitative research using semi-structured interviews with predetermined themes to explore in-depth the perceptions of key stakeholders on the essential elements for successfully implementing the AMORE platform in Colombia.

### Sample selection

The participants were selected through purposive sampling, which entailed choosing a focus group with specific characteristics (18) to guarantee the choice of individuals with expertise in the field. The sample consisted of participants who had been involved, in one way or another, in the development of policies in Colombia. The interviews were conducted virtually and focused on Colombian stakeholders.

The purposive sampling considered important elements from the stakeholder mapping guide of the World Health Organization (19). The initial sample size ranged from 5 to 10 stakeholders, representing both the constitutional governance (authorities) and the operational governance (service providers and users) (20).

## Data collection

A total of seven interviews were conducted until saturation was attained. The decision to reach saturation of the analysis categories was not due to the number of participants or their qualities, but to the emerging categories from each of the conversations. The interviews were conducted independently and provided a full and varied perspective on the study topic.

Interviews were conducted in Spanish via Zoom between March and April 2023. Interviews lasted between 20 and 40 minutes. One author was responsible for transcribing and translating the audio recordings and another author double-checked these transcriptions. Table 1 gives a summary of the main characteristics of the study participants.

The research questions were tested in a pilot interview conducted by two of the authors with one stakeholder. Based on the feedback from this pilot interview, the questions were refined to establish the core set of questions for the remaining interviews. All the interviews were conducted by the primary investigator, who has extensive experience in this technique. The interview was divided into four main parts. First, participants were asked about their professional roles to establish their viewpoint in the context of the study. Second, the AMORE platform dashboard (21) was presented to each participant for about 10 minutes. The dashboard displayed data for emergency services in July of 2020, analysis of which had already been published in a peer-reviewed journal (16). Third, participants were asked open-ended questions designed to gather information about the platform's appearance, the variables to be included or excluded, and potential improvements to the platform. Finally, the interviewer asked participants what resources would be needed to implement the platform, its potential areas of use, the barriers and facilitators influencing its use, and its strengths and limitations. [Annex 1 gives the interview questions.](#)

A demonstration was carried out to show the functionalities and features of the platform, and then the participant was given the opportunity to navigate on their own and ask questions. To avoid biases, the participants were not affiliated with the project and had no prior knowledge of the platform. This ensured that the opinions expressed during the interview were based on direct experience and not influenced by biases. This practice also contributed to promoting a more objective evaluation of the platform and its features.

## Data analysis

The qualitative data analysis of the interviews involved a systematic approach that identified themes and categories that emerged from the data (i.e., a thematic coding analysis). This approach to interview and category analysis provided useful insights into participants' experiences and helped to uncover patterns and themes that might not be immediately apparent from the raw data (22). A map of the categories of the analysis was created with two major groups: characteristics of the AMORE platform and implementation of the AMORE platform for the decision-making process.

All data were anonymized by removing any personal information that might reveal the participant's identity. Participants were coded as E1–E7 in the results. The software ATLAS.ti (23) was used to code the interviews. The original and anonymized data were stored separately on secure, encrypted external hard drives, with access restricted to the research team.

## Ethical aspects

This study was approved by the Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health, United States of America. The School's human subjects protection program is registered with the U.S. Office of Human Research Protection. Before the interview, participants received an informed consent form to read and sign and agreed to be recorded. Audio recordings of the interviews were securely stored.

## RESULTS

By conducting semi-structured interviews with key informants, we identified key insights from many types of stakeholder on the characteristics of the AMORE platform, and issues relating to its implementation in decision-making processes, particularly in the context of Colombian cities.

### Category 1. Characteristics of the AMORE platform

Regarding the dashboard's appearance, all the stakeholders valued its functionalities positively. They highlighted its user-friendly visualization of the information and how different

**TABLE 1. Stakeholder characteristics, Colombia, 2023**

Gender	Age range, in years	Sector	Area of knowledge	Type of role	Engagement in policy development	Education level	City of influence in Colombia
F	30–40	Academia	Social sciences and public policy	Researcher	Analysis	PhD	Cali
F	30–40	Public	Health, policy, and planning	Policy-maker	Policy review and evaluation	Master	Medellin
F	30–40	Private	Social development	Coordinator	Policy information	Master	Bucaramanga
M	30–40	Public	Planning, social development, policy	Policy-maker	Implementation	Master	Cali
M	40–50	Public and private	Transportation and mobility	Policy-maker	Agenda-setting	PhD	Cali
M	40–50	Public and academia	Health epidemiology	Researcher	Analysis	PhD	Bogota
M	40–50	Public	Urban planning	Policy-maker	Policy review and evaluation	Master	Cali

F, female; M, male; PhD, doctor of philosophy.  
**Source:** Prepared by authors based on the results.

**TABLE 2. Quotes from participants on the characteristics of the AMORE platform, Colombia, 2023**

Theme	Quotes
Appearance	<i>E2: The platform has great potential by having the three dashboards or the three maps with identifications and indicators that obviously summarize the information in a very quick and efficient way.</i> <i>E7: It's a good idea to use PowerBi because it's very user-friendly. You don't have to be an expert to navigate it.</i>
Variables to eliminate	<i>E3: How much would marital status matter for accessing services? ... That category in terms of public policies doesn't tell you anything.</i> <i>E4: Well, you're not going to make policies for singles, nor the category of whether they're married or not.</i>
Variables to include	<i>E1: Understand the segmentation or characterization of the population and then based on this, understand which are the critical [transport] corridors or routes.</i> <i>E1: A small description which one can quickly consult. Maybe a drop-down menu or text at the bottom that can describe better each one of the variables.</i>
Improvement strategies	<i>E1: A normative variable to really know if it is possible or not to locate a new facility at that point... This generates a variation of 1.5% in the optimization displacements calculated by the platform.</i> <i>E1: If we stick with the 2018 data snapshot, we wouldn't know at this moment if the exercise is giving a 60% or 70%; we aim to use official data sources that have growth projections.</i>

Source: Prepared by authors based on the results.

actors, not only highly skilled data professionals, could interpret the results (see Table 2 for supporting quotes).

Concerning the variables used in the dashboard, two stakeholders questioned the relevance of marital status in informing decision-making and the development of public policies. On the other hand, five participants recognized the necessity of incorporating additional variables such as the topography of the city, the coverage of actual centers of care, the areas permitted for the placement of new services in accordance with the land use regulations (known in Colombia as the Territorial Ordering Plan), and the utilization of population projections for 2030 from the national census (Table 2). These additions were seen as valuable complements to the existing data.

The participants emphasized the importance of creating descriptors for each category to enhance the dashboard design. For example, they recommended including extended definitions that pop up when the cursor points at a descriptor for categories, such as level of traffic. This would make it easier to understand the meaning of each characteristic (Table 2).

## Category 2. Implementation of the AMORE platform

All study participants mentioned the importance of human and technological resources for the successful implementation of the platform in a real-world context. Concerning human resources, most study participants stressed that the platform's management should be entrusted to trained database managers. Ideally, these individuals should be full-time staff members capable of regularly updating the platform's data. However, professionals with knowledge in urban planning and health care were also needed (see Table 3 for illustrative quotes). In terms of technological resources, the participants mentioned the importance of both the hardware and software. They emphasized the necessity of having access to free sources of information to continually collect and update data, thereby ensuring the validity of the information.

### Subcategory. Areas for possible use

Study participants identified five main areas where the platform could enhance the decision-making process. First, the public sector could use the platform, specifically the local health, planning, and transport secretariats, as well as the social

development secretariat. Second, the private sector could benefit from the platform, specifically clinics, since the private sector may have more resources to invest in these tools. In addition, some of these private institutions already have business units that work extensively with data collection for decision-making, so making a tool of this type could be helpful to them. Third, the academic community could use the platform to generate research, efficiency studies of policies, or intervention proposals. Fourth, two participants identified community organizations as potential beneficiaries. They highlighted the importance of providing data to the community to empower it to improve control of the city's public institutions through civil society groups. One participant suggested that city observatories could serve as connecting entities between different organizations, overseeing the initiative and ensuring its sustainability (Table 3).

### Subcategory. Barriers and facilitators

The participants identified three main barriers to implementation of the platform: economic, political, and lack of trained personnel. Regarding economic barriers, these initiatives entail high costs, especially in maintenance, even when the platform uses free sources of information and was created in Microsoft Power BI.

Concerning political barriers, participants noted that new projects carried out in cities generally need to align with the current leader's political agenda. Additionally, a lack of political will to empower the population was identified as a political barrier. One participant mentioned that mayors were generally opposed to disclosing information because it could affect their image or create problems for their administration.

Finally, the shortage of trained personnel in the country was considered a key barrier. Currently, few people have in-depth knowledge of big data for continuous platform maintenance. Additionally, one participant pointed out that these professionals were typically temporary employees in the public sector, making it challenging to ensure the platform's sustainability (see Table 4 for illustrative quotes).

The participants also identified multiple facilitators for platform implementation, which could be categorized as: construction of a minimum viable product at a low cost; creation of interinstitutional efforts and international cooperation; and establishment of a network to promote the visibility of the platform.

**TABLE 3. Stakeholder's views on the resources for implementation of the AMORE platform and possible areas for its use, Colombia, 2023**

Theme	Quotes
<b>Resources for implementation</b>	
Human resources	<i>E2: Having a professional who can help you connect different dimensions of human knowledge would be very important because it would allow you to enrich and get more out of all that knowledge. Obviously, health professionals who know well how the system should function efficiently.</i>
Technological resources	<i>E1: Technician who can generate those analysis variations and can feed the databases to keep these dashboards updated.</i> <i>E1: A geolocation software that could also help you generate the types of maps or geoviews and that are open source.</i> <i>E4: Automation, because rebuilding every time the tool needs to be updated, the human team that programmed it, designed it, standardized it will be very expensive and will likely not work.. The key issue lies in the implementation, which is automated, and I believe there are tools to do this, but it depends on positioning it in the public agenda.</i>
<b>Possible areas for its use</b>	
Observatory	<i>E1: For integral coordination, where there is like a team that can respond to the health secretariat and also to the planning secretariat and a mobility secretariat or even to academic institutions themselves, can be much more interesting. And there, for example, an academic community can take the initiative to adopt this project as a research or deepening project</i>
Citizenship	<i>E3: For the citizens, for civil society to create and maintain control mechanisms over public services. And yes, if any of the services being provided were found to have deficiencies in delivery to any population group, this could be a tool for citizens to request more control or greater intervention.</i>
Private sector	<i>E2: This is also very important for the private sector that wants to invest in health institutions and not put all the institutions in the same place or geographic area, because as it happens there, we see that all specialized institutions are concentrated in one sector of the city. Because no secretariat builds the private network, the private sector decides where to place it.</i>

Source: Prepared by authors based on the result.

**TABLE 4. Stakeholders' views on the barriers to and facilitators of implementation of the AMORE platform, Colombia, 2023**

Theme	Quotes
<b>Barriers</b>	
Limited human resources	<i>E2: What always happens is that they hire trained personnel in the secretariats or governorships, but they are contractors, who last 6 months and then they leave. And that's where it ends. Very few health secretariats in the country have specialized personnel in big data and the management of large volumes of data. In other words, almost all of them are contractors who come and go.</i>
Limited political will for community empowerment	<i>E6: The importance of the platform from the public point of view undoubtedly is the use of information, or for political use. Mayors are a little averse to having too much information displayed there, because it affects their image. The use of information for political purposes ends up making mayors dislike visibility of indicators that can affect their image. It creates more visibility of the current problems and situations in the public space, so they will surely place barriers around this issue.</i>
<b>Facilitators</b>	
Visibility networks	<i>E6: We hold workshops with governments and government teams, with secretariats, with mayors. We have told them what is happening with the quality of life and they sit with us, study the indicators and that helps them make decisions in the councils; they exercise political control with our data. But why? Because there is credibility, legitimacy, consistency, and also sustainability of the initiative over time and behind us.</i>

Source: Prepared by authors based on the results.

The construction of a minimum viable product with pilot tests for different entities could generate tangible incentives to increase interest among stakeholders. Regarding networks to promote the platform's visibility, some participants suggested that current decision-makers within the public administration should be involved to enhance the platform's visibility in different spheres. Participants also mentioned that joint efforts would make the platform more robust and promote its sustainability. They suggested looking for actors who are engaged in similar endeavors to join efforts and share know-how. Finally, the participants suggested the project be presented to international cooperation organizations, to whom the use of the platform could be offered.

### Subcategory. Outcomes

All participants mentioned that the AMORE platform provides a detailed analysis of accessibility and can be a valuable

complement to the decision-making process in developing policies. The information gathered will enable easier and more efficient decision-making, ultimately benefiting the citizens who stand to gain the most from these improvements (see Table 5 for illustrative quotes).

## DISCUSSION

This study identified conditions perceived by participants as necessary to successfully implement the AMORE platform in Colombian cities, namely: the main barriers and facilitators for implementation, the strategies to guarantee the continuity and sustainability of the project, and the key actors needed for a successful implementation.

Accessibility instruments such as the AMORE platform have been acknowledged as valuable support resources for land-use and transport planning. However, despite the number of instruments available in the literature, they are not widely

**TABLE 5. Stakeholder's views on the outcomes of the AMORE platform, Colombia, 2023**

Theme	Quotes
<b>Outcomes</b>	
Decision-making with a social conscience	<p><i>E6: Surely those decisions have not considered social or equity variables and equal opportunities as those that this project may be considering, where they say, look, here it's not that [it is] the private decision to situate in a place because of the benefits that it may bring to the company by locating in that area. But here we are going to include a social variable, and that is the distance and access time to health services for a population that is currently being affected by the distance.</i></p> <p><i>E3: I believe that the greatest benefit is the aspect of projecting where to better allocate public resources. For example, if you say, "Look, they need a new service or they need to have a service point in a particular district, in a particular neighborhood, because that's where there are more people who need the service." That is extremely valuable information that will make the delivery of public services much easier and more efficient. That's the beauty and virtue of using big data in areas such as projections.</i></p>

**Source:** Prepared by authors based on the results.

used in planning in practice. A 2016 study explored the reasons behind the underutilization of accessibility instruments in planning practice (24). It found that, even though urban planners recognized the usefulness of accessibility instruments in planning practice, the main causes for the implementation gap were organizational barriers and the lack of institutionalization of accessibility instruments.

Furthermore, a 2008 study evaluated, through focus groups, the challenges and opportunities encountered in implementing a mapping innovation (comprising software and managerial decision support) as a knowledge translation strategy, and the perceptions and beliefs about the mapping software (25). Interestingly, the study identified the same barriers to software implementation as our study, which included the initial implementation cost of the tool and the expenses related to personnel training to effectively manage the software.

Additionally, in the 2008 study, participants discussed the need for users to have extensive expertise to accurately interpret the maps and related data displayed in the tool evaluated. In our study, however, one of the strengths of the AMORE platform, as described by the participants, was that the information is clear and can be easily understandable by the community in general without highly specialized knowledge of transportation or urbanization.

Similarly, through in-depth interviews, a 2014 study identified the barriers to and facilitators of generating support for evidence-informed decision-making, views on emerging development, and priorities for bridging the gaps. The study found that limited resources, both financial and human, which were also highlighted in our study, were the main constraints to the appropriate implementation of new strategies (26). Time constraints and negative attitudes or resistance towards change were also identified, although not explicitly mentioned by the participants in our study.

In addition, the 2014 study found that to establish an influential knowledge translation culture in research projects, it was crucial to involve decision-makers who develop an interest in the project to promote its success (26). This last idea aligns with the results of our study, where some participants mentioned the importance of promoting the platform and creating appropriate networking to guarantee that the project is included in the agenda of the different government secretaries.

Implementing a tool such as the AMORE platform has several challenges and barriers that need to be considered to improve spatial accessibility to health services in cities with traffic congestion. In addition, it is vital to recognize that having the data

on dynamic assessments of travel times is only the first step to achieving improved service accessibility and equity. This platform lays the foundation for highlighting equity issues in different populations in the city. While it does not solve equity problems, it provides information that can motivate or guide improvements to better distribute services in a geographical area.

The platform alone cannot achieve these objectives – namely, highlighting equity issues and guiding improvements in service distribution – without active involvement of key stakeholders and efforts to reduce the potential implementation barriers identified in our study. It is also important to mention that it is not enough to promote accessibility to health care services, but we should also ensure that strategies promote quality of care and patient safety.

Our study findings also have several social and political implications. First, they underscore the importance of data in advocating for citizens' rights and emphasize that the public should always be the main beneficiary of such projects. As noted in a 2007 study, empowering communities through transferring knowledge and data should always be a priority in research agendas (27). Observatories in Colombian cities are becoming key data collection and analysis centers. For example, observatories such as Bucaramanga Como Vamos have enabled exercises in community empowerment and provided data to private and public entities, thus supporting better decision-making. As suggested by our study participants, the AMORE platform could partner with these institutions to ensure the project's sustainability and promote the empowerment of communities.

Second, our findings highlight that accessibility to health services does not just concern the health sector. The successful implementation of the AMORE platform will require the development team to identify strategic allies in academia, the public sector, and the private sector to jointly undertake the implementation effectively.

### Strengths and limitations

This is the first exploratory study to evaluate stakeholder perceptions about the AMORE platform. It included different stakeholders from multiple knowledge domains. This diversity contributed to the generation of comprehensive and multifaceted results.

Regarding study limitations, it is worth noting that only one researcher conducted the interviews. However, a second researcher oversaw data extraction and the analysis of the

information collected. Although the study included only seven participants, interviews were conducted until thematic saturation was achieved. Inclusion of other stakeholders from higher levels of the decision-making process, such as government ministers, could have provided insights into how this platform might be implemented at a national level.

Additionally, our study only evaluated the stakeholders' perceptions on the possible implementation of the AMORE platform rather than the outcomes of its real-world implementation. For this reason, future studies should focus on evaluating stakeholders' perceptions after the platform has been implemented to ascertain how it truly changed accessibility to health care services and improved equity.

The selection of the participants was purposive and gathered stakeholders from various knowledge areas. The selection aimed at focusing interest in using new elements among individuals who, due to their careers, had been involved to a certain degree in policy development. While this homogeneity of the participants may be perceived as a limitation, it also presents an opportunity for the emergence of new circles of co-creation and acquisition of fresh knowledge. Future research could consider including patient advocacy groups for in-depth interviews.

The study did not use assessment frameworks or toolkits for the evaluation. Such instruments have become increasingly common in assessing stakeholder participation in design-thinking processes for health innovations (28). They are also valuable for the systematic identification of stakeholders (29). Future studies could consider adopting these methodologies for their analysis.

## CONCLUSION

Limited access to health care is a great challenge, especially in middle- and low-income countries. To address this issue, it is important to gain an understanding of the local dimensions and determinants influencing access to health care services, and make concerted efforts to improve these services. Innovations such as the AMORE platform can potentially support decision-making processes across various sectors, including public policies, internal processes within private organizations, academia, and citizens, particularly in the Colombian context. However, the implementation of such a tool has challenges including financial

barriers, contextual and environmental factors, limited resources, and resistance to change. This study identified what were considered the prerequisites for the successful implementation of the AMORE platform in Colombian cities.

Having the data is only the first step towards improving accessibility and equity of services; providing quality automated data systems and improving collaboration could promote a deeper active participation and enhance efforts to reduce the barriers to implementation identified in this study.

Finally, our study underlines the importance of collaborative efforts between stakeholders and decision-makers to develop a strategy aligned with the needs of the population to ensure effective policy impact on equity in accessibility to health services.

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## Mejora de la accesibilidad espacial a los servicios de atención de salud en Cali, Colombia: evaluación de una plataforma innovadora por las partes interesadas

### RESUMEN

**Objetivos.** i) Determinar las percepciones de las partes interesadas sobre los factores contextuales y los recursos necesarios para implementar con éxito la plataforma AMORE, una herramienta que proporciona evaluaciones de accesibilidad para los servicios de atención de salud, teniendo en cuenta factores como el tiempo de desplazamiento y el estado del tráfico; y ii) determinar los posibles factores que obstaculizan o favorecen las mejoras en la accesibilidad espacial a los servicios de atención de salud en el contexto urbano en Colombia.

**Métodos.** En este estudio cualitativo, se realizaron entrevistas semiestructuradas en una muestra intencional de siete partes interesadas. La muestra se obtuvo a partir de responsables del diseño de políticas en Colombia, prestadores de servicios y usuarios, entre otras personas, con conocimientos en la materia. Las entrevistas se llevaron a cabo hasta llegar al punto de saturación.

**Resultados.** Los participantes tenían una opinión favorable sobre el aspecto de la plataforma AMORE, de la que resaltaban su fácil visualización. Se formularon sugerencias sobre las variables utilizadas en el panel de información, la implementación de la plataforma, las posibles áreas de uso y los elementos que podrían obstaculizar o favorecer su implementación y uso. Los obstáculos incluían desafíos económicos, políticos y de personal, mientras que entre los elementos facilitadores estaban la creación de un producto mínimo viable a bajo costo y el establecimiento de lazos de cooperación interinstitucional e internacional.

**Conclusiones.** Innovaciones como la plataforma AMORE tienen el potencial de brindar apoyo para los procesos de toma de decisiones en diversos sectores, como las políticas públicas y los procesos internos en las organizaciones privadas, el sector académico y la comunidad. Sin embargo, la implementación de una herramienta de este tipo plantea desafíos económicos, contextuales y ambientales. El estudio determinó los factores clave que se consideran requisitos previos para implementar con éxito la plataforma AMORE en las ciudades colombianas.

### Palabras clave

Accesibilidad a los servicios de salud; planificación de ciudades; investigación sobre servicios de salud; Colombia.

## Melhoria da acessibilidade espacial aos serviços de saúde em Cali, Colômbia: avaliação de uma plataforma inovadora pelas partes interessadas

### RESUMO

**Objetivos.** Os objetivos do estudo foram: i) avaliar as percepções das partes interessadas sobre os fatores contextuais e os recursos necessários para implementação bem-sucedida da plataforma AMORE, uma ferramenta que fornece avaliações sobre a acessibilidade dos serviços de saúde considerando fatores como tempo de deslocamento e condições de trânsito; e ii) identificar possíveis barreiras e facilitadores para melhorar a acessibilidade espacial a serviços de saúde no contexto urbano da Colômbia.

**Métodos.** Neste estudo qualitativo, foram realizadas entrevistas semiestructuradas com uma amostra intencional de sete partes interessadas principais. A amostra foi composta por indivíduos envolvidos na elaboração de políticas na Colômbia, prestadores de serviços e usuários, entre outros, que tinham conhecimento especializado na área. As entrevistas foram realizadas até se alcançar a saturação.

**Resultados.** Os participantes tiveram opiniões positivas sobre a aparência da plataforma AMORE, destacando a visualização fácil de usar. Foram feitas sugestões sobre as variáveis usadas no painel, a implementação da plataforma, potenciais áreas de uso e barreiras e facilitadores para sua implementação e utilização. As barreiras englobavam dificuldades econômicas, políticas e relacionadas ao pessoal. Já os facilitadores incluíam a criação de um produto mínimo viável de baixo custo e o desenvolvimento de cooperação interinstitucional e internacional.

**Conclusões.** Inovações como a plataforma AMORE têm o potencial de apoiar processos decisórios em vários setores, incluindo políticas públicas e processos internos em organizações privadas, no meio acadêmico e na comunidade. No entanto, a implementação dessa ferramenta envolve desafios financeiros, contextuais e ambientais. O estudo identificou os principais fatores que foram considerados pré-requisitos para o sucesso da implementação da plataforma AMORE em cidades colombianas.

### Palavras-chave

Acesso aos serviços de saúde; planejamento de cidades; pesquisa sobre serviços de saúde; Colômbia.