

COLOMBIA: Strengthening of multidisciplinary PHC teams and facilities in rural territories within the primary care network of El Tambo Hospital in Colombia

Country Context

Colombia has a decentralized health system that currently provides 99% of its residents with comprehensive health insurance.¹ Employers and employees make monthly financial health insurance contributions which allows them access to primary and complementary health care services included in a comprehensive health care benefit package through a network of private and public health providers. The Government subsidizes low-resource populations to ensure access to an equivalent health care benefit plan that is managed by health insurers, which offers health services mainly through public health providers.

The El Tambo municipality covers 3,280 km² and has a total population of 54,198 people, of which 94.9% live in rural areas and 4,242 are indigenous. The population density as of 2021 is 16.52 per km². El Tambo is in the Cauca province in the southwest region of Colombia. There are 19 districts and 215 rural zones, and the urban area has 19 neighborhoods. Most causes of death are related to external events (violence and accidents) and cardiocirculatory diseases. With respect to mortality associated with perinatal causes, there was an increase in this indicator in the previous years that is attributed to the high dispersion of the rural territory and lack of primary health care facilities.^{2,3}

The El Tambo Hospital Primary Care Network opened in 2000. The hub of the network is located in the El Tambo urban area; there are six health posts evenly distributed across the rural areas that serve the remote communities. The main center has ambulance, pediatric, obstetric, and adult admission wards, in addition to an emergency department, clinical laboratory, x-ray, and an outpatient clinic that is comprised of a general practitioner, nurse, dentist, nutritionist, basic medical specialists (i.e., internal medicine, obstetrics and gynecology, pediatrics and psychiatry) as well as physical, respiratory, and speech therapists. Other medical specialties are accessible via telemedicine through agreements held with tertiary care hospitals located in the country's bigger cities. This PCN works in coordination with higher levels of public hospitals located in Popayán, the capital city of the Cauca province that is 40 minutes away by ground transportation, referring more complex patients that need specialized care.

El Tambo hospital mostly receives funding from health insurers under capitation agreements that are linked to the empanelment of a known group of users. Additionally, the health secretariat of the El Tambo municipality allocates resources for the hospital to implement health promotion activities at the community level and also covers costs for health care of a small group of uninsured population. The earnings before interest, taxes, depreciation, and amortization (EBITDA) of the PCN was 14% in 2021.

Based on the current national guidelines for health promotion, health maintenance, and control of the principal causes of disease in Colombia, the El Tambo Hospital health posts offer health promotion and

¹ <https://minsalud.gov.co/proteccionsocial/Regimensubsubdiado/Paginas/coberturas-del-regimen-subsubdiado.aspx>

² Análisis de situación de salud del municipio – El Tambo Cauca. ASIS 2021.

³ Learn more: <https://www.youtube.com/watch?v=4lyRoloYNU8>

basic preventative services and conduct community outreach for primary care services deployed from the main health care center. Each health post has basic biomedical equipment and a nurse assistant that plays the role of community health worker, who acts in coordination and under the supervision of nurses and general practitioners of the center's hub.

El Tambo hospital also runs an antenatal care program in the territory. However, the PCN faces the challenge of improving the care for the mother-child binomial, particularly in remote rural areas of El Tambo where the access to health services is more difficult. The population has a strong ethnic background with marked cultural differences, and there are harsh topographic conditions, restricted mobility, and safety issues due to the presence of illegal army groups that control the drug traffic in that zone of the country. Other challenges include limited information on the pregnant women within the territory which hinders appropriate follow-up, poor means of communication, scarce resources to invest in technology equipment and qualification of the health personnel, as well as high fragmentation in the sectoral and intersectoral response to address known social determinants of health affecting the health of expectant women. The baseline uptake of the antenatal program was 65.5%, attendance to at least 4 antenatal appointments was 84.5%, and the perinatal mortality rate was 19 per 1,000 live births in 2021. Figures that showed an increase trend in the perinatal mortality rate as compared to previous years, reflecting accessibility barriers to the program, the disruption of the health care services experienced during the COVID-19 pandemic, and quality issues in the health care.

The Implementation Case

The IC team was formed to help strengthen the multidisciplinary health care teams and primary health care rural facilities at El Tambo Hospital PCN, aiming to optimize the performance of the antenatal care program and improve maternal-perinatal health outcomes. The Engineer—María Fernanda Mejía Martínez, Head of the Planning Department—led the team with the support of Diana Marcela Figueroa Hurtado, Coordinator of Specific Protection and Early Detection and registered nurse, as well as Flor Nelly Ante, PCN General Manager. All three are part of El Tambo Hospital Steering Committee.

The IC team defined the following problem and vision statements, and end goals with the support of the facilitation team and peer learners of the Colombian Learning Group and the whole PHCPI COP.

Problem Statement

A high maternal-perinatal morbidity and mortality rate has been recorded in rural areas of El Tambo, particularly during the last year, due to limitations in access and continuity of antenatal care offered by El Tambo Hospital PCN. Social determinants of health such as low educational level of the population, little culture of self-care, working conditions that expose pregnant workers to risks, low economic income of families, food insecurity, pregnancy in adolescence, and poor housing health conditions contribute to this problem. The situation is aggravated by difficulties in the coordination among health services and health posts of the PCN, mainly due to geographical dispersion of the territory, inadequate staffing, limited technical capabilities of the existing health personnel, lack of equipment and biomedical supplies, poor connectivity, lack of an efficient information system, limited intersectoral action, and limited community involvement in the planning and monitoring of the health care services offered.

Vision Statement

Ensure a robust and high-quality primary health care system that contributes to reducing maternal and perinatal morbidity and mortality in rural areas of El Tambo over the next five years, by addressing the most relevant social determinants of health, strengthening the network of primary health care posts and services of the hospital's PCN, improving intersectoral action and community participation, and ensuring financial sustainability over time.

End Goals

- Goal #1: Characterize the beneficiary population of the maternal-perinatal PHC services of El Tambo Hospital and their sociodemographic and health needs.
- Goal #2: Train and provide appropriate medical equipment and supplies for the multidisciplinary health teams at the health posts of the PHC network located in rural areas.
- Goal #3: Develop tools for capturing, processing, and systematizing the information of the antenatal care program, for the follow-up of pregnant women and technical support of the health care teams in rural territories of El Tambo.
- Goal #4: Define a strategy to strengthen the territorial health management, increase intersectoral action and community participation, and improve the antenatal services and the timely intervention of social determinants of health associated with maternal-perinatal morbidity and mortality in rural areas.

After discussion within the learning community, and considering the knowledge gaps that the IC team recognized as relevant to close to strengthening the implementation efforts of the project, the following learning agenda was jointly defined:

Box 1: Colombia IC Learning Questions

Characterization and risk prioritization of pregnant women:

- Which variables are pertinent to consider for the categorization and risk prioritization of pregnant women in rural areas, in consideration of their social and health situation?
- What methodologies can be applied to achieve the interoperability of the various sources of information for an adequate characterization of the beneficiaries of maternal-perinatal services?

Optimization of the prenatal care information system:

- What clinical and operational variables and indicators are relevant to monitor within an information system aimed at strengthening antenatal care in a PCN in rural areas?

Intersectoral action and community involvement:

- What models of territorial healthcare management, intersectoral action, and community participation have proven to be effective in improving antenatal care and maternal-perinatal outcomes in PCNs, and particularly in rural areas? How to identify the most appropriate community leaders to involve?

Implementation Process

Goal #1. After cross-referencing the "Safe Maternity" database of Cauca, which contains basic clinical data of pregnant women that reside in the province, with the SISBEN (Social Programs Potential Beneficiaries Identification System) database, the team **characterized the clinical condition and socio-demographics health determinants of 265 expectant mothers residing in El Tambo and 30 expectant mothers residing in the urban area of the town.** This characterization allows for a comprehensive assessment of social

conditions and health needs of the pregnant population in the territory as well as geolocation of expectant mothers in case of absenteeism to antenatal appointments and a faster response and mobilization in case warning symptoms occur. However, the unsafe conditions of certain rural areas of El Tambo and lack of connectivity did not allow for socio-demographic characterization nor the geolocation of women in several zones.

Goal #2. After an initial diagnosis of training needs, and with the support of local education institutions, several **continuing education courses were delivered to qualify and certify the PHC staff** of the Hospital (prioritizing 32 assistant nurses/community health workers) in topics such as birth care, health care of victims of intrafamily violence, and basic life support. In addition, the hospital purchased biomedical equipment required to streamline the provision of antenatal care services at the rural health posts, and **lobbied health authorities of Cauca province and external funders to obtain financial resources to acquire computers** to support the systematic follow-up of pregnant women in the municipality's scattered rural areas. At the end of the implementation period, no funding had been received by the hospital for this purpose.

Goal #3. The team **developed an interactive software called "SIMAPE"**, which captures daily individual data of each pregnant woman residing in El Tambo, from existing databases (including the Cauca Safe Maternity and SISBEN databases). This allowed for real-time clinical and socio-demographic information collection by community health workers as they directly evaluated patients at health posts or in their homes during scheduled visits. The SIMAPE tool also facilitates the monitoring of pregnancy progression and the appearance of warning symptoms and biopsychosocial risk factors that demand intervention, therefore supporting the coordination among lower and higher cadres of health staff between the main health care center of the PCN and the health posts in rural areas, and promoting appropriate and timely decision-making. At the end of the implementation period, the SIMAPE software pilot was pending roll-out at the health posts of the PCN due to lack of technological devices.

Goal #4. The IC team **mapped and approached key sectoral actors and stakeholders pertaining to other social sectors of El Tambo** and presented the current situation and associated risks of expectant mothers of the territory in relation with the presence of critical social determinants of health. The team **obtained the buy-in of the Major of El Tambo and some community leaders and started to outline an inter-sectoral roadmap** that determines which interventions should be led by the different actors to comprehensively address significant health determinants. The roadmap defined the *what, how, and when* for each intervention interventions and included efforts to ensure coordination among actors.

Key Lessons and Insights

Main Achievements

1. This work strengthened the characterization system of pregnant women in El Tambo, and particularly of those living in rural areas, through the cross-referencing of existing sectoral and non-sectoral databases of the territory that contain relevant clinical and socio-demographic information.
2. The SIMAPE tool was successfully created for the systematization of pregnant women's most relevant clinical variables and social determinants, in modules that are accessible to health staff

of the Hospital's PCN, thus optimizing patient monitoring (including early warning signs) and supporting timely decision-making processes.

3. The problem-solving capacity for those PCN health personnel who work in rural areas of the municipality improved via continuous education actions, the provision of required biomedical equipment and supplies, and real-time access to pregnant women's clinical and socio-demographic information.
4. A group of nursing assistants/community health workers in rural communities of El Tambo received dedicated skills strengthening as an essential pillar of the Hospital's PHC model.

Key Lessons

The following pillars were identified as essential elements of the IC team's success:

- Teamwork. It is important to define a teamwork strategy that enables synergy of actions, delegation of responsibilities, and monitoring of execution to achieve intended goals.
- Clear objectives and causal chains. The correct delineation of objectives and steps to take to achieve them is essential to conducting efficient and effective work that is rooted in an assessment of needs and priorities. Expectations for results must always align with available resources and availability of team members to execute action.
- Strategic alignment. Aligning proposed actions with the Hospital's strategic platform is crucial, contextualized to the characteristics of the municipality and its community.
- Triangulation of available information sources. The identification and triangulation of information from existing databases within the health sector and other sectors allow for a comprehensive characterization of target populations.
- Tool contextualization and validation. Tools to support monitoring and decision-making for adequate healthcare of a population must respond to that population's characteristics and must be developed in line with the available scientific evidence, current regulations, official guidelines. Tools should also be validated by both technical experts and the PCN teams to ensure the tools will be readily adopted.
- Strategic communication for intersectoral mobilization. A strategy should be developed that defines intersectoral actions aimed at improving a population's living and health conditions. The strategy must be focused on the health social determinants, key actors and their interests and expectations, as well as the implementation of advocacy activities that are supported by evidence, the collection of meaningful indicators, and the prioritization of messages to be communicated. The strategy must use effective data visualization methods and mechanisms to enhance community participation and accountability.

Insights from Peer Learning Process

The PCN COP and the peer learners assigned to follow the Colombia IC, contributed to the design and progress of the IC. Peer learners and technical facilitators were always very engaged during discussions and Learning Exchange events. They shared insightful experiences and technical resources that supported the implementation and addressed challenges identified by the IC team. The facilitators regularly

accompanied and offered technical coaching to the team, guiding them across the implementation phases and helping them to solve specific issues. The peer learners following the IC case were particularly useful in the validation of the team strategy to map and link existing databases of pregnant women in El Tambo to improve comprehensive characterization, as well as in the selection of relevant variables to include in the SIMAPE software and the identification of best strategies to approach sectoral and intersectoral stakeholders in order to build the intersectoral roadmap to tackle social determinants of health responsible of poor maternal-perinatal outcomes.

Next Steps

The IC team will continue strengthening the antenatal care program and other health maintenance programs. Moving forward, the team will focus on the following activities:

1. Complete the clinical and socio-demographic characterization and geolocation for 100% of the pregnant women in the municipality of El Tambo, through domiciliary visits performed by the community health workers and the use of GPS of their mobile phones, as connectivity and the local safety situation allow.
2. Continue strengthening the competencies and capabilities of the PCN health care teams through additional trainings delivered by local education partner institution. Develop additional tools that facilitate updates and evidence-based decision-making processes for other health programs to promote health; prevent and control cardiovascular diseases, neoplasms, and mental health conditions; and monitor growth and development for children under 10 and adolescents.
3. Pilot and encourage the adoption of the SIMAPE tool to facilitate monitoring of pregnant women in remote rural areas of El Tambo (when connectivity issues are overcome). Expand the applicability of the tool for the follow up of other cohorts of patients and users of the hospital's health promotion and maintenance programs.
4. Continue to lobby before territory key actors, with the support of the Major of El Tambo, and share with them strategic information, evidence, indicators, and analysis regarding the condition of pregnant women in the municipality, as well as the maternal-perinatal outcomes and their relationship with social determinants of health, to secure their active involvement in the intersectoral strategy and roadmap to improve the living and health conditions of pregnant women.
5. Promote the involvement of the pregnant women and community leaders to advocate before sectoral and non-sectoral relevant actors that are responsible of improving living conditions, wellbeing, and maternal-perinatal health conditions in El Tambo in an effort to obtain these actors' endorsement, their commitment, and their active participation in the intersectoral strategy and roadmap proposed by the hospital.