"Peri-border" health care programs: the Ecuador–Peru experience

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ABSTRACT

Objective. *To identify the main strengths, weaknesses, and challenges of the Ecuador–Peru "peri-border" health care program and to analyze the legislative, managerial, and organizational arrangements adopted to integrate the two country's national health systems in the border area.*

Methods. *A descriptive, qualitative case study was carried out using three complementary methods: literature review and analysis of official Peruvian and Ecuadoran national and binational documents, 18 semi-structured interviews of key informants, and a survey of the entire health worker population of the Suyo–Macará binational micro-network.*

Results. *The key program challenge was the absence of reciprocity; Peruvian citizens were entitled to free health care services in Ecuador but Ecuadoran citizens did not receive the same benefit in Peru. The need for improvements in the binational system's human resources was also identified. The program's main strength was its organizational structure, which is designed mainly for the implementation of 1) the binational network and 2) a patient referral / counter-referral system that includes the transfer of patient clinical information.*

Conclusions. *Notwithstanding considerable challenges, peri-border programs are feasible and replicable. Program success seems to be highly dependent on the completion of a number of steps, including 1) consolidation of the original binational memorandum into a binding binational agreement between the two countries; 2) achievement of similar standards in both countries for the provision and quality of health care services, focusing on complementarities; and 3) development of an integrated binational information system.*

Key words Border health; health systems; delivery of health care; Ecuador; Peru.

Cross-border health care programs are part of innovative international public health policies aimed at providing health care to citizens of one country or in one or more neighboring countries where they may find themselves occasionally due to travel, residence along the border, and/or cross-border work (1). Despite the growing relevance of such initiatives (2–5), and the political priority for progressive regional integration across South American countries via regional forums, such as the Union of South American Nations (*Unión de Naciones Suramericanas*, UNASUR) (6), the subject remains largely unexplored. Recent developments such as the implementation of seven cross-border health care programs in the Andean region by the Andean Health Agency–Hipólito Unanue Convention (*Organismo Andino de Salud Convenio Hipólito Unanue*, ORAS–CONHU) (7, 8) further suggest the need for analysis. No model exists for analysis of cross-border health care programs and there are no peer-reviewed studies of programs implemented in the Andean region by ORAS-CONHU. While the literature refers to programs that target populations along international borders as "cross-border," that term does not adequately describe the focus of this study, or the programs it covers, whose area of intervention is limited to specific territories along international borders (not anywhere in a neighboring country). Therefore, for specific reference to interventions limited to certain binational corridors or neighboring re-

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gions, the authors of the study propose the term "peri-border," using the Greek root "peri" (literally meaning "around," "near," or "enclosing") to define the reach of certain programs more precisely.

The inability of health systems to ensure universal health coverage (UHC) and the unavailability of adequate health services are among the main reasons for people in developing countries, particularly in border areas, to seek health care abroad (9–11). In many countries, the number of health care personnel is insufficient to meet the population's needs, the facilities and equipment are inadequate (12), and/or there are various barriers to accessing the labor market and extending health coverage through traditional social institutions (13).

A case study of the pioneering integration of health services along the border of Ecuador and Peru was conducted to shed light on the operational status and management challenges of the most advanced binational health care program in the Andean region.

Ecuador and Peru's Binational Social and Health Care Program (*Programa de Cooperación Socio-Sanitaria, en apoyo al Plan Binacional de Paz Ecuador–Perú,* PCSS) (14) is a project implemented by local authorities along the border of Loja (Ecuador) and Piura (Peru) via financial assistance and technical cooperation from the Italian Ministry of Foreign Affairs Directorate General for Development Cooperation (*Ministero degli Affari Esteri, Direzione Generale Cooperazione Sviluppo,* MAE–DGCS). After an initial identification, negotiation, and planning period (2000–2003), the program was divided into two phases. The study reported here focuses on both Phase I (2004–2007) and the "transition period" (2008–2011). The main program objective was to create the Binational Network (*Red Binacional de Servicios de Salud Piura-Loja*) (15) to enable cross-border sharing of health services and established a unified system of referral and counter-referral for patients that included transfer of all related clinical information, as described below. The long-term goal was to establish a pilot program for implementation of a model for binational comprehensive health care (*Modelo de Atención Integral de Salud Binacional,* MAISB) to secure the right to health care binationally, particularly along the border (16).

The Binational Network is characterized by social, economic, and demographic homogeneity. Both sides of the Ecuador–Peru border region show greater socioeconomic similarity to each other than to their respective national averages. The most common occupations are tied to mines, commerce, agriculture, and the public sector, and there were pronounced gaps, more worrisome on the Peruvian side, regarding access to basic services and education. At the end of Phase I of the program (2007), there were 80 075 people served by the Binational Network—29 793 habitants on the Peruvian side of the border and 50 282 habitants on the Ecuadoran side (14). The Ecuadoran health systems included two hospitals, one health care center, seven sub-health care centers, and seven health posts, whereas the Peruvian side included only one hospital, three health care centers, and 26 health posts (14, 15). Lack of or low accessibility and/or proximity to health services pushed both Ecuadoran and Peruvian patients to resort to assistance from more appropriate or accessible services in the neighboring country. Proximity is a crucial factor in health care delivery within contexts characterized by 1) shortages in transportation and 2) poor households. In addition, high peri-border migration flows should be considered not only as a factor of regional identity but also as a mechanism of social reproduction in an area where the border is a daily and recurring phenomenon. In this context, health systems' integration policies may represent an innovative response to the health care needs of populations living on borders and contribute to the achievement of UHC (17) while also helping to fight diseases such as dengue and malaria.

The Ecuador–Peru case study was analyzed with the following objectives: 1) to identify the program's strengths, weaknesses, and main challenges and 2) to analyze the legislative, managerial, and organizational arrangements adopted to enhance integration of the two health systems in the border area in order to identify the key variables for successful replication of the program.

MATERIALS AND METHODS

The current research was a descriptive, qualitative case study of Ecuador and Peru's binational health care program that used triangulation among three different complementary methods to analyze peri-border health programs from different perspectives and enhance confidence in both the findings and the internal validity of the research (18, 19).

The first step was an extensive literature review and analysis of official Peruvian and Ecuadoran national and binational documents (including strategic and operational project plans and reports, national laws and regulations, formal binational agreements, and procedures resulting from the integration process). This documentation offered a systematic picture of the events as they occurred. Second, 18 semi-structured interviews were conducted, with sampling "hand-picked for the topic" (20), aimed at those who have or have had an active role in the PCSS. The aim was to take advantage of the knowledge and the experience of those who helped to identify, plan, and implement the program. Finally, a survey was performed involving the entire health worker population of the binational micro-networks Suyo (Peru)–Macará (Ecuador) and Lancones (Peru)–Zapotillo (Ecuador) including technical staff. The survey objective was to test the level of program awareness among health care personnel and to compile and analyze their comments on the main program challenges. The research was supported by the constant use of field notes. The analysis and structure of the Results section were modeled on the health policy and system research (HPSR) framework (21, 22), which was selected for its ability to capture the interdependence between health policy and health systems. As in the HPSR framework, health system characteristics were divided into interconnected "building blocks." In this study those included 1) legislative aspects, 2) management and financial administration, 3) organization, and 4) human resources. For each building block, the main outcomes are presented as the product of the triangulation of the three methods.

The PCSS has characteristics similar to those of the six other programs implemented in the Andean region that it helped inspire and is therefore considered representative of the region's overall experience. Those characteristics include 1) the peri-border nature of the program; 2) program objectives ("improving the extension of health services for popula-

tions living along the border and contributing to international cooperation and peace"); 3) geographic context (Andean region); 4) timing (all programs were implemented in or after 2004); 5) binational or multinational character; and 6) involvement of a third state or multilateral institution(s) (the MAE–DGCS, and/or the ORAS–CONHU, through its Andean Border Health Plan [*Plan Andino de Salud en Fronteras,* PASAFRO] project).

Given the strong similarities between the program examined in this case study and the six other programs implemented in the Andean region, the results of the case study may be considered applicable to those other programs.

The case study research was approved by the bioethics committee of the Universidad Nacional de Piura (Peru). Interviews and survey were conducted with the informed consent of the participants, and responses were collected anonymously.

RESULTS

Legislative aspects

The Ecuadoran and Peruvian health systems (23–25) are segmented vertically and characterized by 1) the simultaneous presence of public and private sector actors and 2) strong differences in access to health care services across each country's population (26, 27). To address these similar problems, the two countries have autonomously begun legislative processes toward achieving UHC and decentralization.

In Ecuador, constitutional reforms carried out in 2008 significantly influenced the health care system as well as, indirectly, the PCSS. The new constitution defined health as a right and guaranteed universal and equitable access to goods and health services, specifying (in Article 366) that "public funding for health shall be timely, regular and sufficient and must come from ongoing sources of the General Budget of the State" (28). The main effect of these changes on the PCSS is the guarantee of state-funded health care services for all individuals on Ecuadoran soil, including Peruvian citizens using Ecuadoran health care services.

Important reforms have recently been introduced in Peru as well, including 1) the Law for the Modernization of the Health Security's system, enacted in 1997; 2) the Integral Health Insurance system (*Seguro Integral de Salud,* SIS) introduced in 2002 to ensure coverage for the most vulnerable populations; and 3) Law No. 29344, enacted in 2009, which addresses UHC (29). Designed to ensure the full and progressive right to health insurance for all Peruvian citizens (30), the latter law is far from being fully or effectively implemented, mainly due to its incompatibility with the limitations of the national health budget.

The characteristics of the health systems of Ecuador and Peru and the differences between them (health care services for Peruvians in Ecuador are guaranteed by the 2008 constitution reforms, while health care services for Ecuadorans in Peru are not covered by Peruvian Law No. 29344) influenced the PCSS and jeopardized its reciprocity during Phase I.

To overcome this weakness, Ecuador and Peru, pushed by the PCSS Committees, signed the Binational Agreement of Chiclayo (31), which was ratified by Peruvian Law No. 29942 in 2012 (32). This agreement defines the SIS as the institution responsible for the reimbursement of health care services to Ecuadoran citizens in the Peruvian part of the Binational Network.

Survey data showed that the commitment and participation of public health authorities vis-à-vis the PCSS were considered "regular" (37.3%) or "high" (37.3%) (Table 1). This result is in line with the recent introduction of the Binational Agreement and in cross-border literature is considered a key variable for the success of such initiatives (33).

TABLE 1. Frequency (%) of health workers' ratings of public health authorities' commitment to/participation in the Binational Social Health Care Program, Ecuador and Peru, August 2012

Rating	Peruvian health workers		Ecuadoran health workers		Total	
	Frequency	%	Frequency	%	Frequency	%
"Excellent"	10	19.2	5	10.0	15	14.7
"High"	15	28.9	23	46.0	38	37.3
"Regular"	22	42.3	16	32.0	38	37.3
"Insufficient"	1	1.9	1	2.0	2	1.9
"Do not know"	4	7.7	5	10.0	9	8.8
Total	52	100	50	100	102	100

Management and financial administration

According to official documents (14, 16), in Phase I of the project there was no joint financial public administration system. Peru financed health care services through the Peruvian Ministry of Health (*Ministerio de Salud,* MINSA) and the SIS,

TABLE 2. Frequency (%) of health workers' survey responses about payment mechanisms/features for Peruvian citizens treated at Ecuadoran health centers, Ecuador and Peru, August 2012

Survey response	Peruvian health workers		Ecuadoran health workers		Total	
	Frequency	%	Frequency	%	Frequency	%
"The patient, his/her family member, or whoever accompanies him/her to the health center pays"	11	21.2	0	0.0	11	10.8
"The patient has the constitutional right to not pay" (i.e., the Ecuadoran health system pays)	26	50.0	46	92.0	72	70.6
"The patient is exempt from paying because he/she is indigent"	1	1.9	0	0.0	1	1.0
Other	0	0.0	0	0.0	0	0.0
"Do not know"	14	26.9	4	8.0	18	17.6
Total	52	100	50	100	102	100

TABLE 3. Frequency (%) of health workers' survey responses about payment mechanisms/features for Ecuadoran citizens treated at Peruvian health centers, Ecuador and Peru, August 2012

Survey response	Peruvian health workers		Ecuadoran health workers		Total	
	Frequency	%	Frequency	%	Frequency	%
"The patient, his/her family member, or whoever accompanies him/her to the health center pays"	29	55.8	31	62.0	60	58.8
"The patient has the right to not pay"	4	7.7	2	4.0	6	5.9
"The SIS [Peru's Integral Health Insurance system] pays"	10	19.2	1	2.0	11	10.8
Other	6	11.5	1	2.0	7	6.9
"Do not know"	3	5.8	15	30.0	18	17.6
Total	52	100	50	100	102	100

while the Ecuadoran Ministry of Public Health (*Ministerio de Salud Pública*, MSP) addressed the financial health needs of Ecuador. The only binational source of funding was Italy's MAE–DGCS, which provided infrastructure and equipment to both sides of the border.

The survey data clearly indicate that legislative differences between the two countries affected health care reimbursement management. For example, 92% of Ecuadoran health care personnel said that the Peruvian patient in Ecuador has the constitutional right to not pay (i.e., The Ecuadoran health system pays) (Table 2), whereas 55.8% of Peruvian health care personnel said health services for Ecuadoran patients in Peru were paid for by the patients themselves, a family member, or whoever accompanied the patients to the health center (Table 3).

Findings from institutional documents and the interviews confirmed the absence, ineffectiveness, or inappropriateness of the information system. The ongoing absence of a binational information system is a challenge to the program because it prevents the adoption of binational planning mechanisms and makes it impossible to define a strategy that also addresses border epidemics such as malaria and dengue. The survey data presented a conflicting picture; survey respondents were less critical of the information system, with 59 of 102 individuals (57.8% of the health care personnel) rating its quality as "functional" or "good." This disparity is probably due to the great improvements that have been made to the system since the start of the PCSS. In other words, health workers may have rated the information system in relative terms (with respect to the starting point), whereas the results of the other two sources reflected an absolute judgment.

Organization

The organizational aspects of the program are some of its main strengths. The binational interchange of health care services along the border was based on the implementation of 1) the Binational Network and 2) a system for patient referral and counter-referral that includes the transfer of clinical information. The referral and counter-referral system is an administrative procedure through which a health center transfers responsibility of the care of a patient to a higher-level health center, providing all related clinical information and the reasons for the transfer. In turn, after providing care to the patient, the health center to which the patient was referred provides the original health center with all appropriate information on any clinical tests and procedures carried out to enable patient follow-up (34). Among all surveyed health care personnel, 16.7% rated the referral system as insufficient (Table 4) and 53.9% rated it as functional, whereas 24.5% rated the counter-referral activities as insufficient (Table 5). Overall, ratings of the Ecuadoran system were more optimistic than those of the Peruvian system.

According to official documents, one of the program's organizational objectives was to set up a shared plan for emergencies and disasters to address peri-border epidemics (14). There was consensus among the interviewees that this type of plan was still missing at the end of Phase I of the project. In addition, only 52.9% of surveyed health care personnel said they were aware of the application of any organizational guidelines for dealing with medical emergencies.

TABLE 4. Frequency (%) of health care workers' ratings of the Binational Social Health Care Program patient referral system, Ecuador and Peru, August 2012

Rating	Peruvian health workers		Ecuadoran health workers		Total	
	Frequency	%	Frequency	%	Frequency	%
"Good"	3	5.8	8	16.0	11	10.8
"Functional"	31	59.6	24	48.0	55	53.9
"Insufficient"	14	26.9	3	6.0	17	16.7
"Do not know"	4	7.7	15	30.0	19	18.6
Total	52	100	50	100	102	100

Human resources

High turnover among personnel working in the Binational Network is another considerable challenge. Both the official program reports and the results of the key informant interviews indicated the Binational Network is characterized by unfavorable working conditions and there is a lack of incentives for health care personnel to live in the network area. This drives the majority of health personnel to emigrate as soon as the opportunity arises. Living conditions within the Binational Network area include high exposure to diseases such as dengue and malaria, social exclusion, significantly lower salaries compared to the national average (especially in Peru), and exposure to a high rate of delinquency and violence. According to the survey data, 54 of the 102 health care personnel surveyed (52.9%) worked in the Suyo–Macarà

TABLE 5. Frequency (%) of health care workers' ratings of the Binational Social Health Care Program patient counter-referral system, Ecuador and Peru, August 2012

	Peruvian health workers		Ecuadoran health workers		Total	
Rating	Frequency	%	Frequency	%	Frequency	%
"Good"	1	1.9	6	12.0	7	6.8
"Functional"	25	48.1	23	46.0	48	47.1
"Insufficient"	20	38.5	5	10.0	25	24.5
"Do not know"	6	11.5	16	32.0	22	21.6
Total	52	100	50	100	102	100

micro-network for less than five years and 21 of the 52 Peruvian health care personnel (40.4%) worked in it for less than one year.

The high turnover rate not only affects the quality of health care but also makes the capacity-building processes ineffective: 48% of surveyed health personnel said they had not received any specific training for the MAISB even though official documents stated that training regularly occurred. Therefore, the problem may not be a lack of training per se but rather a continuous staff changeover that limits the training's impact.

Finally, 63.7% of interviewees rated Binational Network health care personnel as a whole quantitatively insufficient to match the health care demand.

DISCUSSION

The key challenge that emerged from the analysis is the absence of reciprocity, which hampered the full implementation of the MAISB during Phase I of the program. While Peruvian citizens are entitled to free health care services on the Ecuadoran side of the Binational Network, this is not the case for Ecuadorans on Peruvian territory.

The absence of reciprocity is mainly due to two different, but converging factors. The first is the substantial difference in legislation between the Ecuadoran and Peruvian health systems. The designation of the SIS as the institution responsible for the reimbursement of health care services to Ecuadoran citizens in the Peruvian part of the Binational Network (Law No. 29942, passed in 2012) could represent a first step toward a solution and serve as a model for other peri-border programs facing similar financial imbalance.

The second reason lies in the structural deficiencies of the Peruvian health care delivery system compared to the Ecuadoran system. The results of the current research indicate that the patient referral and counter-referral system, financial administration (reimbursements), human resource management, and the quality of the health care facilities are systematically better in Ecuador than in Peru. To improve services on the Peruvian side, strengthening existing health centers may need to be given a higher priority than establishing new ones. In addition, to increase complementarity, diagnostic procedures and therapies that are not provided in one country could be provided for the entire network area by the other country. Successful integration of the peri-border program and full MAISB implementation will largely depend on the achievement of similar standards in both countries as well as complementarity.

The need for improvements in the human resource building block also emerged. To address this problem, two ad hoc policies are suggested, based on the recommendations of key actors on the most effective solutions. The first is to strengthen collaboration between the PCSS and universities and other higher education centers. Training opportunities, including access to master's or doctoral degrees with favorable conditions (fee waivers, scholarships, etc.), may prove a useful incentive for health care personnel to work in the Binational Network and subsequently decrease the human resource turnover problem, ensuring the continuity of the program. The second suggested policy is the establishment of joint permanent capacity-building centers and continuous training programs.

Overall, the analysis revealed the feasibility of designing and implementing a Binational Network with an organizational system for patient referral and counter-referral. The creation of the network has guaranteed the circulation of resources and capabilities, improving health care services within the peri-border area while avoiding duplications of investment and helping to address the shortage of financial transfers from the central governments of Ecuador and Peru.

Given the outcomes of this case study, notwithstanding the considerable challenges that were identified, the authors conclude that peri-border programs are both feasible and replicable. Ultimate program success seems to be highly dependent on completion of the following three steps:

- Consolidation of the original binational memorandum initiating the program into a binding binational agreement (i.e., ratified and converted into national law) between the two bordering countries. The agreement should explicitly state which mechanisms will be used for reimbursement of any health care services provided through the Binational Network to citizens of the neighboring country.
- Achievement of similar standards in the provision and quality of health care services delivered through the binational network by both countries, focusing on complementarities.
- Development of an integrated binational information system, to ensure continuous processing and sharing of data that support reciprocal financial accountability (e.g., reimbursement of payments), and a binational plan for emergency and disaster response.

Limitations

This research had some limitations. First, a more in-depth economic and/or cost-benefit analysis could not be performed due to the lack of adequate economic and financial datasets. In addition, in Peru, 52 out of 54 health workers completed the survey whereas in Ecuador only 50 out of 62 completed it due to 1) the inaccessibility of certain areas of the country and 2) absences of individual health workers from their duty stations. This did not affect the validity of the results, however, because the aim of the survey was merely to provide an additional analytical perspective to the qualitative research. Finally, the lack of comparable experiences in the literature did not allow for comparison of the PCSS with a suitable benchmark. Only two references to relevant cross-/peri-border programs were found in the literature:

the European Union experience (4), and programs implemented along the U.S.–Mexico border. Both cases were substantially different than the PCSS and therefore could not be used for comparison. In Europe, in addition to a different socioeconomic environment, cross-border movements of patients occur within the context of an existing supranational political and economic union. The U.S.–Mexico border case differs greatly from the Ecuador–Peru case due to the structural differences between the two North American states in terms of language, culture, economic power, and health systems. On the other hand, the absence of comparable experiences highlights the originality of both the emerging peri-border programs in the Andean region and this research.

Conclusions

The main challenge for the Ecuador–Peru binational program was the absence of reciprocity in binational service provision; Peruvian citizens were entitled to free health care services in Ecuador but this benefit was not reciprocated for Ecuadoran citizens in Peru. This challenge can be overcome and the right to health care ensured binationally through the establishment of a bilateral binding agreement, the achievement of similar standards of health care services, and the development of a shared information system.

Peri-border health policies undoubtedly represent an additional tool for the achievement of UHC and progressive regional integration—established key goals among countries in the South American subcontinent—and should therefore be promoted. To better define criteria and methods for their implementation, more studies on peri-/cross-border programs, including comparative studies, are highly recommended.

Conflicts of interest. None.

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RESUMEN

Programas de atención de salud en zonas fronterizas: la experiencia de Ecuador y Perú

Objetivo. Determinar los principales puntos fuertes y débiles, y las dificultades del programa de atención de salud en la zona fronteriza entre Ecuador y Perú, y analizar las disposiciones legislativas, de gestión y de organización adoptadas para integrar los sistemas nacionales de salud de ambos países en la zona fronteriza.

Métodos. Se llevó a cabo un estudio de casos descriptivo y cualitativo mediante el empleo de tres métodos complementarios: la revisión bibliográfica y el análisis de documentos oficiales peruanos y ecuatorianos, nacionales y binacionales; 18 entrevistas semiestructuradas a informantes clave; y una encuesta dirigida a todo el personal sanitario de la microrred binacional Suyo-Macará.

Resultados. La principal dificultad del programa estribó en la ausencia de reciprocidad; los ciudadanos peruanos tenían derecho a servicios de atención de salud gratuitos en Ecuador, pero los ciudadanos ecuatorianos no recibían la misma prestación en Perú. También se señaló la necesidad de mejoras en materia de recursos humanos del sistema binacional. La principal fortaleza del programa fue su estructura organizativa, diseñada principalmente para la implantación de 1) la red binacional; y 2) un sistema de referencia y contrarreferencia de los pacientes que incluye la transferencia de la información clínica de los pacientes.

Conclusiones. A pesar de las considerables dificultades, los programas de atención de salud en zonas fronterizas son factibles y reproducibles. El éxito de los programas parece depender en gran medida de que se cumplan una serie de condiciones tales como 1) la consolidación del memorándum binacional original mediante un acuerdo binacional vinculante entre ambos países; 2) la consecución de estándares similares en ambos países en cuanto a la provisión y la calidad de los servicios de atención de salud, con especial hincapié en la complementariedad; y 3) la creación de un sistema binacional de información integrado.

Palabras clave Salud fronteriza; sistemas de salud; prestación de atención de salud; Ecuador; Perú.