The Effects of Mobile Primary Health Teams: Evidence from the *Médico de Barrio* Strategy in Ecuador

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ABSTRACT

Starting in 2017, Ecuador gradually expanded its primary healthcare access program nationwide using mobile health teams through the *Estrategia Médico de Barrio* (EMB) [or Neighborhood Doctor Strategy]. EMB teams, composed of a general internal medicine physician, a nurse, and a primary healthcare technician, made home visits in marginalized areas. We estimate the impact of the EMB on various health and utilization outcomes using nationally representative household surveys. The treatment variable at the extensive margin is any exposure to EMB at the canton level. At the intensive margin, we use exposure in terms of weeks covered by EMB and the number and composition of EMB personnel per 1000 population. We identify outcomes of treated vs. non- or partially-treated cantons based on the random combination of the timing of the start of the program's implementation and the timing of the survey interview, which varied across cantons. We use fixed effects double- (DD) and triple-difference (DDD) frameworks, the latter for cantons with high indigenous concentration. We find significant effects on the reported health problem and access to healthcare when needed, yet no effects on preventive care. The DDD specification shows mixed results in terms of differential program effects for cantons with high indigenous concentrations. Various alternative specifications and robustness tests do not qualitatively alter the findings.

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1. INTRODUCTION

Various countries in Latin America have implemented mobile health teams to improve health indicators in low-income, rural and peri-urban areas with various degrees of success. In 2017, Ecuador launched *Estrategia Médico de Barrio* (hereafter, EMB) [Neighborhood Doctor Strategy] to strengthen primary healthcare with a focus on health promotion and disease prevention as a tool for citizens to access health services more easily. EMB would progressively expand to cover the entire country with mobile teams; and by the end of 2019, it was operating in every province and canton of Ecuador. EMB teams were composed of three members: a general internal medicine physician, a nurse, and a primary care technician. EMB's strategic objectives were to bring health services closer to the community, thereby reducing access barriers and bolstering the community's participation in the planning, implementation, and monitoring of health programs (Ministerio de Salud Pública, 2017).

Most of the prior research on access to primary healthcare pertains to high-income countries where the overall aim of the interventions is usually to reduce hospital saturation (e.g., due to potentially unnecessary utilization), especially among those with more risk factors. For example, family medicine groups in Quebec, Canada, reduced primary care visits by 11% per patient per year and specialist visits by 6% (Strumpf et al., 2017). On the other hand, there are fewer studies in resource-limited settings, and the intention of interventions is generally to increase access to healthcare and improve quality and equity. For instance, mobile teams increased healthcare utilization in Guatemala, particularly in rural areas with weaker capacity and deficient infrastructure (Cristia et al., 2015). Similarly, in Brazil, an econometric evaluation of the *Programa Mais Médicos* [More Doctors Program] showed a reduction in hospitalizations for ambulatory care-sensitive conditions, particularly after the second year of the program (Fontes et al., 2018). Also, in Brazil, the Family Health Program has shown reductions in infant mortality, especially in the poorest municipalities (Rocha & Soares, 2010).

The objective of this article is to evaluate the effect of the EMB on health and healthcare use using econometric methods. This research contributes to the literature in three important ways. First, it is one of only a handful of papers analyzing the impact of expansions of primary care via mobile teams in Latin America and the first one, to our knowledge, in Ecuador. Second, this research takes advantage of nationally representative data collected before and soon after the mobile team intervention was implemented. Third, the staggered-entry nature of the program rollout at the national level, as well as the random variation in survey interview dates, produced a natural experiment with geographic and temporal variation in treatment intensity.

The empirical approach uses various differences-in-differences (DD) models to evaluate the impact of the program on reported health problems, health care use, and preventive care: first, with a dummy variable indicating any exposure to EMB; second, with a measure of treatment intensity based on the duration of exposure to the program; and third, with an intensity measure based on the number of trained EMB doctors. A triple-differences (DDD) approach contrasts the results for highly indigenous cantons. The DD specifications for any EMB exposure and for high EMB temporal exposure produce estimates that are close to zero and generally not statistically significant for reported health problems, healthcare use, and preventive care. However, when we use the intensity measure based on EMB doctors per 1000 population, there are positive and significant effects on the probability of reporting a health problem and on receiving care when needed, as well as small though negative, effects on preventive care. The DDD specifications also show positive and significant program effects for health problem reporting and for healthcare use when needed for cantons with high indigenous concentration. However, we do not find evidence supporting the notion that preventive care changed in highly indigenous cantons. Several alternative specifications and robustness checks do not qualitatively alter the main findings. This is the first econometric evaluation of the EMB in Ecuador and finds mixed evidence. There are some positive effects on health reporting and healthcare use when needed, though the evidence also suggests some

negative effects (particularly using the number of EMB doctors exposure) and largely null findings on preventive care.

The paper proceeds as follows: the next section gives details on EMB, followed by data sources, variables, and econometrics methods; the next section presents the main results, followed by sensitivity analyses and robustness checks. The last section provides a discussion and concludes.

2. OVERVIEW AND BRIEF HISTORY OF THE *ESTRATEGIA MÉDICO DE BARRIO*

"*Estrategia Médico del Barrio*" (EMB) [Neighborhood Doctor Strategy] was a national health program launched in 2017 as part of Ecuador's self-defined Comprehensive Health Care Model with a Family, Community, and Intercultural Approach. It consisted of home visits made by mobile health teams to promote primary health care services in marginalized areas. The objectives of EMB included: (a) to bring services closer to the community, guaranteeing equitable access to health care services with emphasis on vulnerable groups; (b) to reorganize the use of available resources at the different levels of health care services; (c) and to ensure effective community participation in the planning, implementation, and monitoring of health programs (Ministerio de Salud Pública, 2017).

EMB teams, known as the Comprehensive Health Care Team, were composed of a general internal medicine physician, a nurse, and a primary care technician. Primary care technicians are the core of Ecuador's health model. They are in charge of health promotion and disease prevention in each of their communities, as well as strengthening social participation and co-responsibility. Primary care technicians are not required to have a professional health degree but need to complete a training program provided by the Ministry of Health.

EMB began in August 2017 and operated until the end of 2019, when the COVID-19 pandemic hit. It progressively expanded to cover the whole country. By the start of 2019, it had covered more than half of the territory; and by the end of 2019, it was operating in all the country. In Ecuador, health districts are the heads that manage the provision of health services in a specific geographic area (usually

one or several *cantons*). These health districts delegated the implementation of EMB to their corresponding health centers in each canton. Health centers are small health facilities that provide basic health care, including general medicine, obstetrics and gynecology, dentistry, vaccination, and laboratory (Ministerio de Salud Pública, 2017).

At the health center level, EMB operated in the following fashion. First, EMB teams would make home visits to identify vulnerable groups in their community and gather health data. Once a patient was identified, they were referred to the closest health center for an appointment with a specialized family physician. In-home appointments were also made when a patient could not commute to the health center. Each specialized family physician was assigned a number of vulnerable patients and was responsible for their care and follow-up. After a geographic area had been covered, community surveillance was carried out to monitor new cases in that place.

3. DATA

3.1 Data Sources

We analyzed data derived from two nationally representative health and nutrition surveys, *Encuesta de Salud y Nutrición* (ENSANUT), fielded first during 2012-13 and then again in 2018-19. The first survey collected data from 92,500 individuals under the age of 60; topics included anthropometric, blood and urine measurements, tobacco and alcohol use, physical activity, diet (through a 24-hour food recall diary), as well as issues of health care use and access (https://ghdx.healthdata.org/record/ecuador-national-health-and-nutrition-survey-2012). The second survey collected data from 168,747 people during November and December 2018 (82% of the sample) and from January to July 2019 (for the remaining 18% of the sample). The ENSANUT surveys are publicly available at: https://www.ecuadorencifras.gob.ec/salud-salud-reproductiva-y-nutricion/

In addition, we collected the exact dates when EMB started in each canton from each of the local offices through an information transparency and accountability platform called QUIPUX

[https://web.gestiondocumental.gob.ec/que-es-quipux/]. QUIPUX allows citizens to register, organize and trace digital and/or physical documents that are sent and received by public institutions. We sent official requests to the district directors for rollout dates, the number of health centers, and the EMB teams' number of personnel and composition in each canton. The response rate corresponding to the cantons listed in both ENSANUT surveys was 92% within three months.

3.2 Outcome and treatment variables

We analyzed five main outcome variables. First, we looked at the reported health problem in the 30 days prior to the ENSANUT survey dates. Specifically, the question asked was:

> *Did [person j] in the last 30 days [from ... to...] have any illness, accident, burn, toothache, earache, or any other discomfort, even if it was temporary?*

Second, we used healthcare utilization to address the health problem. Specifically, the question asked was:

> *What did [person j] do as the first action to solve the (health problem)? a. Visited a hospital, dispensary, health center, or sub-center; consulted a doctor, healer, etc.? b. Got care at home from a doctor, nurse, healer, etc.? c. Self-medicated? d. Had to be admitted to a hospital, clinic, etc.? e. Did nothing.*

We recoded this variable as a dichotomous variable with 0=did nothing or self-medicated, and =1 if otherwise. Note that by survey design, the healthcare utilization question was not asked for those who did not have a health problem, which has implications for the canton-level means. Thus, a third variable was created at the canton level by interacting the canton-average mean for health problems with the canton-average mean for healthcare utilization. This scaled variable measures the average level of health system effective response at the canton level. We called this variable health problem *and* curative care utilization.

The fourth outcome was preventive care. For preventive care, the specific survey question was:

> *Now I am going to ask you questions about preventive care: In the last 30 days (from...to…), were you checked by a psychologist, dentist, healer, apothecary, or massage therapist? Or did the neighborhood doctor visit you at home? Or did you receive any preventive service such as: vaccinations, well-child check-ups, blood pressure checks, dental check-ups, etc.?*

Fifth, we constructed a canton-level variable interacting the canton-average mean for health problems with the canton-average mean for preventive care use. The rationale for this scaled, combined variable is that the EMB doctors visited vulnerable people who may have been feeling sick, and got referred to the health center. At the health center, they received check-ups not only for the illness they had but also for other potential illnesses (e.g., dentistry). We called this variable health problem *and* preventive care.

Next, we operationalized the treatment (or exposure) variable in three ways. First, a dummy variable (*EMB*=1) indicated if a canton had at any point been exposed to EMB when we could observe outcomes (i.e., prior to the latest ENSANUT survey date of July 2019). Second, we measured treatment at the intensive margin via a dummy variable (=1) if the canton had been exposed to EMB for a longer time than the median number of potential weeks covered (i.e., more than 36 weeks out of the potential 97 weeks of program treatment that we could observe) [Appendix A1]. The third measure of exposure was the number of EMB staff members (general internal medicine physicians, nurses, and primary care technicians) per 1000 population at the canton level. Specifically, we obtained data on the number of EMB teams in each *cantón* (as mentioned before, via QUIPUX). We also obtained the official population estimates at the canton level from the National Statistics and Census Institute (INEC): https://www.ecuadorencifras.gob.ec/proyecciones-poblacionales/

4. IDENTIFICATION STRATEGY AND ECONOMETRIC METHODS

This paper uses a panel, fixed-effects approach (Angrist & Pischke, 2009, 2015) The unit of analysis is the *cantón* (or canton), the second highest administrative division level in Ecuador after the province. Nationally, there are 221 cantons distributed among 24 provinces. The EMB program was rolled out in

stages across different cantons, which allowed us to evaluate the effects of EMB using a differences-in-differences approach (Cunningham, 2021).

For identification, we exploit a natural experiment created by the random combination of the different rollout dates of EMB start and the different data collection dates for the endline survey (ENSANUT 2018-19). This natural experiment generates geographic and temporal random variation in terms of exposure to treatment. Thus, the first DD specification was:

$$Y_{it} = \alpha_0 + \alpha_1 POST + \alpha_2 EMB_{it} + \alpha_3 POST * EMB_{it} + \varepsilon_{it} \qquad [1]$$

where Y_{it} indicates the outcome of canton *i* at time *t*, *POST* is an indicator (=1) if the time is 2018-19; EMB_{it} is a dummy variable (=1) indicating any presence of *Estrategia Médico Barrio* at the *cantón* level; and where the coefficient of interest is the interaction α_3.

The second DD specification was as follows:

$$Y_{it} = \beta_0 + \beta_1 POST + \beta_2 longerEMB_{it} + \beta_3 POST * longerEMB_{it} + \eta_{it} \qquad [2]$$

where the treatment was measured by a dummy variable (=1) if the temporal coverage of EMB was above the national median (i.e., over 36 weeks out of the 97 observable weeks in the analytical sample). The coefficient β_3 was the interaction of interest. The maximum potential number of weeks was defined as the difference between the last date of the endline survey and the first date of the EMB rollout (i.e., 97.2 weeks).

A third DD specification was of the form:

$$Y_{it} = \gamma_0 + \gamma_1 POST + \gamma_2 moreEMBdocs_{it} + \gamma_3 POST * moreEMBdocs_{it} + \upsilon_{it} \quad [3]$$

where we measured treatment by a dummy variable (=1) if the number of EMB physicians per 1000 population at the canton level ($morePMBdocs_{it}$) at the time of the endline survey was above the national mean; and where the coefficient γ_3 was the interaction of interest. The rationale for this specification is

that additional human resources for health in proportion to the total population may result in increased potential impact.

The triple differences (DDD) specifications used an additional dummy variable (=1) for cantons where indigenous self-identification was above the national mean, as has been done in related research (Galárraga & Harris, 2021). All DDD models were fully interacted (i.e., they included main effects and all second-order interactions). Moreover, all specifications (DD and DDD) included canton-fixed effects and used robust standard errors clustered at the canton level (Bertrand et al., 2004)

5. RESULTS

Table 1 shows descriptive statistics for 167 Ecuadorian cantons for which we obtained official EMB rollout dates and official EMB teams' number of personnel and composition; they represent 92% of the 182 cantons included in both ENSANUT surveys. For the outcome variables, at baseline: 42.8% was the canton-level average of survey respondents reporting a health problem in the prior 30 days (range: 13 to 72.3%). Similarly, the canton average for obtaining healthcare was 54.5% (range: 25 to 83.3%). This implies that the rescaled values at the canton level, combining the health problems reported *and* obtained (curative) healthcare average, was 22.8% (range: 7.3 to 42.3%) at baseline, and it decreased to 16.3% at endline (range: 1.1 to 36.1%). The canton average for reported health problems also decreased to 23.1% in 2018-19 (range: 1.1 to 50%), and the canton average for obtaining healthcare increased to 71.4% in 2018-19 (36 to 100%). In contrast, the average probability of receiving any preventive care remained relatively stable over time: 9.1% at baseline (range: 0 to 26.5%) vs. 10.2% at endline (range: 1 to 31%). This implies that the rescaled combination of health problems reported *and* obtained preventive care average, was 3.9% (range: 0 to 14.3%) at baseline, and it decreased to 2.5% at endline (range: 1 to 13.4%).

In terms of treatment variables (or exposures), 57% of cantons were ever exposed to EMB. About a third of the exposed cantons (33%) had high temporal coverage; that is, a third of cantons had EMB for

more than the median number of weeks (36 weeks) out of the potential maximum observed coverage (97 weeks). Similarly, 30% of cantons had a high number of EMB doctors per 1000 population (i.e., above the national mean).

Table 1: Descriptive Statistics

		Baseline: 2012-2013				Endline: 2018-2019			
Variable	Obs	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Outcomes									
Health problem in past 30 days	167	0.428	0.123	0.130	0.723	0.231	0.076	0.011	0.500
Received healthcare to address health problem	167	0.545	0.110	0.250	0.833	0.714	0.116	0.364	1.000
Health problem & received curative care	167	0.228	0.067	0.073	0.423	0.163	0.055	0.011	0.361
Received preventive services in past 30 days	167	0.091	0.050	0.000	0.265	0.102	0.045	0.007	0.311
Health problem & received preventive care	167	0.039	0.026	0.000	0.143	0.025	0.018	0.001	0.134
Treatment Variables									
Estrategia Medico del Barrio (EMB)	167					0.569	0.497	0.000	1.000
High EMB temporal coverage	167					0.323	0.469	0.000	1.000
High number of EMB doctors per 1000	167					0.305	0.462	0.000	1.000
Demographic and Intermediate Variables									
ENSANUT 2018-19 median visit date	167					24Dec2018	63	16Nov2018	13Jul2019
Number of staff in the EAIS team	167					44.5	46.5	2	307
Number of speciallized family physicians	167					7.8	13.6	0	129
Number of type A health centers	167					6.2	7.9	0	71
Number of type B health centers	167					1.0	3.0	0	35
Population in 2018	167					88,185	258,362	2,673	2,600,000
Min date EMB visits were made	167					09Oct2018	280	7Feb2017	27Nov2022
High indigenous concentration	167	0.281	0.451	0	1	0.240	0.428	0	1
EMB doctors per 1000 population	167					0.163	0.171	0.000	1.338
EMB mobile team staff per 1000 population	167					1.356	1.289	0.025	6.644

Notes: Table presents data for 167 cantons for which we obtained official information about *Estrategia Médico de Barrio* (EMB) rollout dates as well as EMB mobile health teams' number of personnel and composition; these 167 cantons correspond to 92% of the 182 cantons with data available in both National Health and Nutrition Surveys [ENSANUT 2012-13 and ENSANUT 2018-19].
EMB=*Estrategia Médico de Barrio* [Neighborhood Medical Program].
Type A and B health centers correspond to primary and secondary care centers.
A canton is defined as having high indigenous concentration if the proportion of people self-identifying as Indigenous is above the national mean.

Table 2 shows the results of implementing equation [1] using fixed effects panel regression. The coefficient of interest is α_3 (i.e., the interaction of *POST*=1 and *EMB dummy*=1) on the five main outcomes (reported health problem, received healthcare, health problem & received curative care, preventive care, and reported health problem & received preventive care). None of the outcomes exhibited any discernible significant effect using the FE DD specification using a dichotomous any exposure to EMB as the treatment.

Table 2: DD Effects of Estrategia Medico de Barrio (EMB)

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.194***	0.169***	-0.0663***	0.00829	-0.0169***
	(0.0159)	(0.0149)	(0.0106)	(0.00705)	(0.00371)
Estrategia Medico del Barrio (EMB)=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x Estrategia Medico del Barrio (EMB)=1	-0.00317	0.000725	0.00235	0.00444	0.00486
	(0.0207)	(0.0210)	(0.0134)	(0.0100)	(0.00484)
Constant	0.428***	0.545***	0.228***	0.0911***	0.0389***
	(0.00510)	(0.00528)	(0.00325)	(0.00253)	(0.00119)
Observations	334	334	334	334	334

Standard errors in parentheses
Robust standard errors clustered at canton level
="* p<0.10 ** p<0.05 *** p<0.01"

Table 3 shows the results of implementing equation [2], where the coefficient of interest is β_3 (i.e., the interaction of *POST*=1 and *high EMB temporal coverage*=1) on the five main outcomes. Again, none of the outcomes exhibits any discernible significant effects using the FE DD specification with a dichotomous indicator for longer EMB coverage.

Table 3: DD Effects of Longer Exposure to Estrategia Medico de Barrio (EMB)

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.187***	0.172***	-0.0610***	0.0116**	-0.0141***
	(0.0124)	(0.0122)	(0.00814)	(0.00568)	(0.00292)
High EMB temporal coverage=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x High EMB temporal coverage=1	-0.0276	-0.00987	-0.0123	-0.00230	0.0000188
	(0.0216)	(0.0237)	(0.0134)	(0.0116)	(0.00508)
Constant	0.428***	0.545***	0.228***	0.0911***	0.0389***
	(0.00507)	(0.00528)	(0.00325)	(0.00253)	(0.00120)
Observations	334	334	334	334	334

Standard errors in parentheses
Robust standard errors clustered at canton level
="* p<0.10 ** p<0.05 *** p<0.01"

Table 4 presents the results of implementing equation [3] using fixed effects panel regression. The coefficient of interest is γ_3 (i.e., the interaction of *POST*=1 and the dummy variable for a high number of EMB doctors per 1000 population = 1) on the five main outcomes (reported health problem, received healthcare, health problem & received curative care, any preventive care, reported health problem & preventive care). Column (1) shows that cantons for more EMB doctors (above the national mean) increased reported health problems by 7.64 percentage points. Column (3) shows the third DD estimate: in cantons exposed to a high number of EMB physicians per 1000 population, the probability of having a health problem *and* receiving care increased by 2.27 percentage points. In contrast, column (4) shows that cantons with a high number of doctors per 1000 population received less preventive care services overall by 2.09 percentage points.

Table 4: DD Effects of More EMB Doctors

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.220***	0.181***	-0.0719***	0.0172***	-0.0130***
	(0.0126)	(0.0123)	(0.00801)	(0.00568)	(0.00293)
High number of EMB doctors per 1000 population=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x High number of EMB doctors per 1000 population=1	0.0764***	-0.0372	0.0227*	-0.0209*	-0.00356
	(0.0192)	(0.0234)	(0.0134)	(0.0116)	(0.00504)
Constant	0.428***	0.545***	0.228***	0.0911***	0.0389***
	(0.00491)	(0.00524)	(0.00323)	(0.00250)	(0.00119)
Observations	334	334	334	334	334
Standard errors in parentheses					
Robust standard errors clustered at canton level					
="* p<0.10	** p<0.05	*** p<0.01"			

Next, we moved on to examine effects for cantons with high indigenous concentration using a DDD approach. Table 5 shows the results of the DDD fixed effects models using the interaction of EMB dummy variable with post and a dummy for high indigenous concentration. In column (1), the DDD coefficient indicates that cantons exposed to EMB and that have high indigenous concentration had

reported health problems with a 9.11 percentage points higher probability (from a baseline of 45.7%). Similarly, in column (3), the probability of having a health problem *and* receiving curative care increased by 5.08 percentage points in cantons with high indigenous concentration. Lastly, in column (5), the probability of having a health problem *and* receiving preventive care increased by 1.91 percentage points.

Table 5: DDD Effects of Estrategia Medico de Barrio (EMB)

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.197***	0.177***	-0.0601***	0.0175**	-0.0125***
	(0.0211)	(0.0181)	(0.0134)	(0.00822)	(0.00463)
Estrategia Medico del Barrio (EMB)=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x Estrategia Medico del Barrio (EMB)=1	-0.0295	-0.00189	-0.0125	-0.00406	-0.000345
	(0.0267)	(0.0252)	(0.0170)	(0.0127)	(0.00632)
High indigenous concentration=1	-0.0863***	0.0721**	-0.0153	-0.0276*	-0.0132*
	(0.0293)	(0.0362)	(0.0249)	(0.0155)	(0.00717)
Post=1 x High indigenous concentration=1	0.00565	-0.0264	-0.0244	-0.0364**	-0.0172**
	(0.0314)	(0.0367)	(0.0243)	(0.0161)	(0.00776)
Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1	-0.0340	-0.0341	-0.0290	0.0166	0.00670
	(0.0406)	(0.0685)	(0.0345)	(0.0208)	(0.00881)
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1	0.0911**	0.0130	0.0508*	0.0300	0.0191**
	(0.0397)	(0.0479)	(0.0287)	(0.0213)	(0.00955)
Constant	0.457***	0.530***	0.237***	0.0962***	0.0415***
	(0.00831)	(0.0113)	(0.00622)	(0.00450)	(0.00200)
Observations	334	334	334	334	334

Standard errors in parentheses
Robust standard errors clustered at canton level
="* p<0.10 ** p<0.05 *** p<0.01"

In Table 6, we present the DDD effects of having longer EMB temporal coverage. In column (1), the DDD coefficient indicates that cantons exposed to EMB for a longer period (i.e., above the median number of weeks of potential exposure) and that have high indigenous concentration had a 10 percentage

point higher probability of reported health problems. Similarly, in column (3), the DDD coefficient shows that highly-indigenous cantons more exposed to EMB in terms of time had a 6 percentage point increase in the probability of having a health problem *and* receiving curative care.

Table 6: DDD Effects of Longer Exposure to Estrategia Medico de Barrio (EMB)

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.196***	0.182***	-0.0580***	0.0181**	-0.0116***
	(0.0167)	(0.0147)	(0.0105)	(0.00713)	(0.00386)
High EMB temporal coverage=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x High EMB temporal coverage=1	-0.0511*	-0.0174	-0.0264	-0.00933	-0.00338
	(0.0259)	(0.0281)	(0.0166)	(0.0151)	(0.00672)
High indigenous concentration=1	-0.0957***	0.0569	-0.0298	-0.0146	-0.00952*
	(0.0217)	(0.0377)	(0.0194)	(0.0123)	(0.00553)
Post=1 x High indigenous concentration=1	0.0251	-0.0300	-0.0143	-0.0261**	-0.0103*
	(0.0244)	(0.0294)	(0.0180)	(0.0131)	(0.00617)
High EMB temporal coverage=1 x High indigenous concentration=1	-0.0329	-0.0141	-0.00632	-0.0137	-0.000857
	(0.0488)	(0.0953)	(0.0378)	(0.0243)	(0.00907)
Post=1 x High EMB temporal coverage=1 x High indigenous concentration=1	0.100**	0.0364	0.0601**	0.0174	0.0111
	(0.0427)	(0.0469)	(0.0273)	(0.0223)	(0.00968)
Constant	0.457***	0.530***	0.237***	0.0964***	0.0416***
	(0.00820)	(0.0114)	(0.00610)	(0.00450)	(0.00203)
Observations	334	334	334	334	334

Standard errors in parentheses
Robust standard errors clustered at canton level
="* p<0.10 ** p<0.05 *** p<0.01"

Table 7 presents the DDD effects of having more EMB doctors per 1000 population and having a high indigenous concentration. In column (1), the DDD coefficient indicates that cantons with EMB doctors per 1000 population above the national mean and that have high indigenous concentration had a 10 percentage points lower probability of reported health problems.

Table 7: DDD Effects of More EMB Doctors

	(1)	(2)	(3)	(4)	(5)
	Health problem in past 30 days	Received healthcare to address health problem	Health problem & received curative care	Received preventive services in past 30 days	Health problem & received preventive care
Post=1	-0.239***	0.189***	-0.0754***	0.0174**	-0.0134***
	(0.0144)	(0.0142)	(0.00923)	(0.00681)	(0.00353)
High number of EMB doctors per 1000 population=1	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Post=1 x High number of EMB doctors per 1000 population=1	0.110***	-0.0587*	0.0357*	-0.0105	0.00251
	(0.0270)	(0.0304)	(0.0198)	(0.0187)	(0.00790)
High indigenous concentration=1	-0.152***	0.0705**	-0.0581***	-0.0183	-0.0136***
	(0.0268)	(0.0338)	(0.0179)	(0.0156)	(0.00521)
Post=1 x High indigenous concentration=1	0.0721**	-0.0296	0.00341	-0.00724	-0.00220
	(0.0277)	(0.0324)	(0.0219)	(0.0132)	(0.00672)
High number of EMB doctors per 1000 population=1 x High indigenous concentration=1	0.119***	-0.0529	0.0580*	-0.000520	0.00863
	(0.0412)	(0.0717)	(0.0332)	(0.0235)	(0.00911)
Post=1 x High number of EMB doctors per 1000 population=1 x High indigenous concentration=1	-0.107**	0.0611	-0.0254	-0.0181	-0.0113
	(0.0417)	(0.0500)	(0.0312)	(0.0260)	(0.0112)
Constant	0.454***	0.532***	0.236***	0.0963***	0.0415***
	(0.00814)	(0.0109)	(0.00612)	(0.00484)	(0.00206)
Observations	334	334	334	334	334

Standard errors in parentheses
Robust standard errors clustered at canton level
="* p<0.10 ** p<0.05 *** p<0.01"

5.1 Sensitivity Analyses and Robustness Checks

This section presents sensitivity analyses and robustness checks. First, we present results from using a linear intensity variable (instead of the dummy indicator) to measure temporal exposure to the program as well as a linear intensity variable to measure the number of EMB mobile health team members per 1000 population. The variable to measure the time-related intensive margin (*pweekscov*) has as the denominator the maximum potential number of weeks that a canton could have been exposed to EMB (counting from the first EMB rollout date to the latest ENSANUT survey data collection date) and the numerator is the actual number of weeks that the canton was exposed to EMB. [Note that these specifications of exposure intensity are similar in nature to that of the proportion of 18 to 20-year-olds that can legally drink in state

s in time *t* in a panel fixed-effects evaluation of the minimum drinking age on morbidity and mortality in the US (Carpenter & Dobkin, 2011)]. Second, we discuss results from using only cantons that eventually adopted EMB as the comparison group (instead of all cantons in the analytical sample) in regressions evaluating the intensive margins with the same treatment dummy variables as before (i.e., *longerEMB* and *moreEMBdocs* as dichotomous treatments). Third, we discuss results from DDD regressions where we change the highly indigenous dummy (*ind*=1) to a linear variable of indigenous self-identification at the canton level (*indrace*, continuous variable); and also include an additional combined outcome variable for the intensity of treatment (time duration and personnel).

5.1.1. Using linear variables for program coverage and number of staff members per 1000 population

Appendix Table A2 shows the effect of EMB (*EMB dummy*=1) on canton-level reported health problems (Although the Appendix tables are organized by outcome, rather than by specification, the DD and DDD frameworks follow the same logic as before). Column (3) shows a significant DD effect: reported health problems increased by 2.82 percentage points (from a baseline rate of 42.8 in the unexposed group) in cantons with additional EMB staff members per 1000 population. Columns (4-6) present the triple-differences approaches (DDD) using a dummy variable indicating if the canton is highly indigenous (i.e., above the national mean). There were statistically significant effects for all DDD specifications on reported health problems. The first DDD estimate shows that reported health problems increased by 9.11 percentage points in highly-indigenous cantons with any exposure to EMB. Column (5) shows that highly-indigenous cantons with more potential weeks covered increased reported health problems by 15.3 percentage points. On the other hand, highly-indigenous cantons with additional EMB staff members decreased reported health problems by 5.78 percentage points.

Appendix Table A3 shows the effects of EMB on canton-level receipt of curative care. The DD estimates (columns 1-3) are very close to zero (.000725 to -.0238) and are not statistically significant. Similarly, the DDD specifications (columns 4-6) show no statistically significant effects for the canton-level curative care receipt.

Appendix Table A4 presents estimates of the effect of EMB on the canton-level probability of having a health problem *and* receiving curative care. Column (3) shows the third DD estimate, which is statistically significant: in cantons exposed to ten more EMB members per 1000 population, the probability of having a health problem *and* receiving care increased by 7.4 percentage points. Column (4) shows the DDD effect using the EMB dummy variable with post and high indigenous concentration: the probability of having a health problem *and* receiving curative care increased by 5.08 percentage points in cantons with high indigenous concentration. Similarly, in column (5), the second DDD specification shows that highly-indigenous cantons more exposed to EMB in terms of time had a 9.65 percentage point increase in the likelihood of having a health problem *and* receiving curative care. Column (6), on the other hand, shows that highly-indigenous cantons with more EMB staff had a reduction in that interacted likelihood (by 2.59 percentage points).

Appendix Table A5 examines any preventive care. We find that EMB had no effects on preventive care; neither the DD nor the DDD specifications show any significant effects.

Appendix Table A6 examines effects on reporting health problem and receiving preventive care. While we find that EMB had no DD effects on health problem and preventive care receipt; two of the DDD specifications show significant effects. Column (4) shows that highly-indigenous cantons exposed to EMB had a 1.91 percentage point increase in the likelihood of having a health problem *and* receiving preventive care (from a baseline rate of 4.15% in the unexposed group). Column (6), on the other hand, shows that in highly-indigenous cantons, for every 10 additional EMB staff members (per 1000 population) there was a reduction in the likelihood of reporting a health problem and receiving preventive care (by 6.37 percentage points).

5.1.2. Early vs. late EMB adopters

A second robust check changed the analytical sample and used only the cantons that eventually adopted EMB as the comparison group (instead of all cantons, including those that were never exposed to EMB).

These analyses are similar to papers with staggered entry or stepped wedge designs where early program adopters are compared to late adopters. Cantons exposed to EMB early had a probability of reporting a health problem that was 8.27 percentage points higher than cantons exposed later ($p<0.01$). That is, the interaction coefficient (*post* × *moreEMBdocs*) shows that increasing the number of doctors leads to higher health problem reporting. This result suggests that people may be more willing to report a health problem when they perceive there may be something to do about it. In contrast, the health problem DDD coefficient (*post* × *moreEMBdoctors* × *ind*) was -0.1124 ($p=0.024$), indicating that in highly indigenous cantons with more EMB doctors, the probability of reporting a health problem was 11.24 percentage points lower. Since that baseline rate was 44.9%, the reduction of 11.24 pp implies a 25% reduction in the probability of reporting a health problem [Results not shown; available upon request].

5.1.3. Linear definition of indigenous concentration and combined intensity program exposure

When we used continuous indigenous self-identification, the main results did not vary qualitatively from the main results. Of note, for a reported health problem, while the DDD coefficient (for *POST* × *numberEMBstaff* × *indrace*) was -0.146 ($p<0.000$), the combined outcome variable (for reported health problems *and* receiving curative care) had a DDD coefficient for *POST* × *numberEMBstaff* × *indrace* of -0.06 ($p=.003$), again suggesting (a counter intuitive effect) that in cantons with higher indigenous concentration, additional EMB personnel hinder access to curative care. Similarly, the combined outcome variable (for reported health problems *and* receiving preventive care) had a DDD coefficient for *POST* × *numberEMBstaff* × *indrace* of -0.0129 ($p=.073$), again suggesting that cantons with higher indigenous concentration and additional EMB personnel had less preventive care.

Finally, we included an additional exposure variable of combined intensity (i.e., *staffper1000pop* × *pweekscov*) and an alternative DDD approach using the actual proportion of the self-reported indigenous population (instead of the dummy variable indicating if the canton is highly indigenous, i.e., above the national mean). The coefficient for the interaction of interest (*post* × *staff* × *indrace*) was .0575 ($p=0.077$), which was qualitatively similar to the main result shown above.

5.2 Limitations

This paper is not without limitations. First, the outcomes are self-reported; though we do use large, nationally-representative surveys in which there is no clear incentive to misreport utilization or other health outcomes. Second, we are making a linearity assumption at the intensive margin (in terms of the time of program exposure and healthcare personnel); there is a possibility that some of the effects could be non-linear. Also, we have not yet explored heterogeneity by geographical/regional areas, population size (rural vs. peri-urban), or level of public health infrastructure.

In terms of future research, this line of inquiry could be extended to analyze potential effects on a number of additional outcomes: immunization rates (Cristia et al., 2015), mortality by age groups (i.e., infant vs. adult mortality) (Rocha & Soares, 2010), hospitalizations for ambulatory care sensitive conditions (Da Silva & Powell-Jackson, 2017; Fontes et al., 2018).

6. DISCUSSION AND CONCLUSION

This paper uses nationally representative data to evaluate the impact of a primary care program, *Estrategia Médico de Barrio (EMB)*, which rolled out primary healthcare teams in rural and peri-urban zones in Ecuador during 2017-2019. Using double and triple differences models, we find DD evidence that is consistent with the positive effects of EMB on diagnostic and curative healthcare; yet mixed evidence regarding an effect on preventive health. The DDD effects are generally positive with effects on health problem reporting, curative care when needed, and preventive care after reporting health problem using any EMB exposure as well as longer temporal exposure in highly indigenous cantons. Nevertheless, measures of more EMB doctors and more EMB staff per 1000 population had a counter-intuitive negative effect on health reporting as well as the interactions with curative and preventive care.

The EMB aimed to increase diagnostic and curative services and improve prevention. The limited success of EMB in achieving its stated goals might be due to its limited reach: a small minority (1.65%)

of people could obtain healthcare services at home (INEC, 2018). Moreover, the budget of about $3.1 billion for health in Ecuador constituted only 2.78% of GDP, i.e., substantially below the 4 to 5% recommended target (El Comercio, 2019).

The counter-intuitive negative effects on health problem reporting in highly indigenous cantons with more EMB personnel per 1000 population may be related to an unintended stigma related to the program. This hypothesis is corroborated by our analyses of potential mechanisms (using the same DD and DDD fixed effects methods). We find that self-reported health perception is also negatively affected in highly-indigenous cantons with more EMB staff per 1000 population. Albeit that is a relatively small effect of about 4% (DDD coefficient was -0.1234, p=0.011, over a baseline rate of 2.871 in the linear health status variable ranging from 1=perfect health to 5=worst health) [Results not shown; available upon request]. This finding aligns with qualitative research in Ecuador that demonstrates that Indigenous populations can be wary of medical professionals. For example, indigenous populations tend to delay seeking medical help as there is a lack of belief that professional care will improve their health outcomes. In some cases, they prefer more traditional medicine and healthcare. Therefore, the medical professional influence might be counter-normative for those populations (Carpio-Arias et al., 2022; Goicolea et al., 2010).

There is increasing evidence that despite limited healthcare workforce, limited financial resources, high burden of disease, rapid population growth, and challenges in extending healthcare to hard-to-reach populations, mobile health teams in low- and middle-income countries (LMICs) are emerging as useful and promising tools to address these healthcare system constraints (Beratarrechea et al., 2013; Mechael et al., 2010; Yu et al., 2017). Our results also contribute to the incipient applied econometrics literature analyzing the effects of primary healthcare expansions in LMICs; and they are consistent with the overall mixed and modestly positive results (Fontes et al., 2018; Özçelik et al., 2020; Rocha & Soares, 2010).

In conclusion, this paper finds evidence to support the hypothesis that *Estrategia Médico de Barrio* improved health problem diagnoses and curative healthcare utilization, including in highly indigenous cantons, yet it seemed to have had mixed results in terms of preventive care use in Ecuador.

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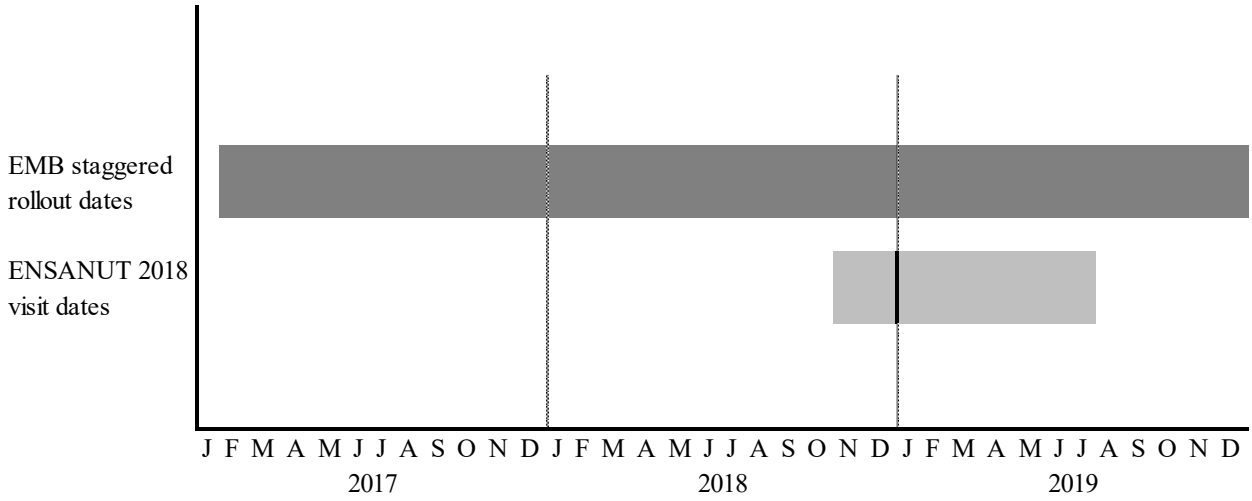
APPENDIX

Appendix A1. Timing of the *Estrategia Médico de Barrio* (EMB) staggered rollout dates and ENSANUT 2018 data collection visit dates



Notes: Figure shows calendar months in the X-axis and type of activity in the Y-axis. The dark vertical line for ENSANUT 2018-19 represents the median survey visit date (24 Dec 2018). The maximum number of observed EMB treatment exposure was 97 weeks (about 24 months) starting from the first EMB date (7 Feb 2017). Dates of baseline ENSANUT 2012 survey not shown.

Appendix Table A2: Panel Estimates of Effect of *Estrategia Médico de Barrio* (EMB) on Reported Health Problem in Past 30 days using National Survey Data [ENSANUT 2012 & 2018] and official EMB data reported by the health districts.

	(1)	(2)	(3)	(4)	(5)	(6)
Differences in Differences (DD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1	-0.00317					
	(0.0207)					
Post=1 x Proportion of total potential weeks covered by EMB		-0.00789				
		(0.0400)				
Post=1 x EMB mobile team staff per 1000 population			0.0282***			
			(0.00702)			
Triple Differences (DDD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1				0.0911**		
				(0.0397)		
Post=1 x High indigenous concentration=1 x Proportion of total potential weeks covered					0.153*	
					(0.0817)	
Post=1 x High indigenous concentration=1 x EMB mobile team staff per 1000 population						-0.0578***
						(0.0138)
Constant	0.428***	0.428***	0.428***	0.457***	0.457***	0.450***
	(0.00510)	(0.00510)	(0.00490)	(0.00831)	(0.00842)	(0.00795)
Observations	334	334	334	334	334	334

Notes: The table presents estimates of differences-in-differences (DD) and triple differences (DDD). Each of the models presented above is from a separate regression, and robust standard errors are directly below in parentheses. The dependent variable in each regression is the canton-level mean of a dummy variable =1 if the respondent reported that in the 30 days prior to the survey, there was an illness, accident, burn, toothache, earache, or any other discomfort, even if it was temporary. The independent variable of interest is any canton-level exposure to the *Estrategia Médico de Barrio* (EMB)=1 (prior to the endline survey), or the proportion of total potential weeks covered by EMB, or the EMB mobile team staff per 1000 population. The regressions are unweighted. All regressions have canton and year-fixed effects. All models are fully interacted: DD regressions control for main effects, and all DDD regressions control for main effects and all second-order interactions. The health problem estimates come from nationally representative surveys: ENSANUT 2012 and ENSANUT 2018. The standard errors are clustered at the canton level. *, **, and *** represent statistical significance at the 10, 5, and 1 percent levels, respectively.

Appendix Table A3: Panel Estimates of Effect of *Estrategia Médico de Barrio* (EMB) on Receiving Any Curative Health Care

	(1)	(2)	(3)	(4)	(5)	(6)
Differences in Differences (DD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1	0.000725					
	(0.0210)					
Post=1 x Proportion of total potential weeks covered by EMB		-0.0238				
		(0.0410)				
Post=1 x EMB mobile team staff per 1000 population			-0.00412			
			(0.00671)			
Triple Differences (DDD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1				0.0130		
				(0.0479)		
Post=1 x High indigenous concentration=1 x Proportion of total potential weeks covered					0.0756	
					(0.0869)	
Post=1 x High indigenous concentration=1 x EMB mobile team staff per 1000 population						0.00335
						(0.0155)
Constant	0.545***	0.545***	0.545***	0.530***	0.530***	0.531***
	(0.00528)	(0.00528)	(0.00528)	(0.0113)	(0.0115)	(0.0112)
Observations	334	334	334	334	334	334

Notes: The table presents estimates of differences-in-differences (DD) and triple differences (DDD). Each of the models presented above is from a separate regression, and its robust standard error is directly below in parentheses. The dependent variable in each regression is a canton-level mean of dummy variable =1 if the respondent reported that in the 30 days prior to the survey, there was an illness, accident, burn, toothache, earache, or any other discomfort, even if it was temporary, and they sought and received care. That is, they either visited a hospital, dispensary, health center, or subcenter; or consulted a doctor, healer, etc.; or got care at home from a doctor, nurse, healer, etc.; or had to be admitted to a hospital, clinic, etc. The independent variable of interest is any canton-level exposure to the *Estrategia Médico de Barrio* (EMB)=1 (prior to the endline survey), or alternatively, the proportion of total potential weeks covered by EMB; or the number of EMB staff per 1000 population. The regressions are unweighted. All regressions have canton and year-fixed effects. All models are fully interacted: DD regressions control for main effects, and all DDD regressions control for main effects and all second-order interactions. The estimates of receiving healthcare when needed come from nationally representative surveys: ENSANUT 2012-13 and ENSANUT 2018-19. The standard errors are clustered at the canton level. *, **, and *** represent statistical significance at the 10, 5, and 1 percent levels, respectively.

Appendix Table A4: Panel Estimates of Effect of *Estrategia Medico de Barrio* (EMB) on Having a Health Problem & Receiving Curative Care

	(1)	(2)	(3)	(4)	(5)	(6)
Differences in Differences (DD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1	0.00235					
	(0.0134)					
Post=1 x Proportion of total potential weeks covered by EMB		0.00341				
		(0.0246)				
Post=1 x EMB mobile team staff per 1000 population			0.00774*			
			(0.00452)			
Triple Differences (DDD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1				0.0508*		
				(0.0287)		
Post=1 x High indigenous concentration=1 x Proportion of total potential weeks covered					0.0965*	
					(0.0544)	
Post=1 x High indigenous concentration=1 x EMB mobile team staff per 1000 population						-0.0259***
						(0.00880)
Constant	0.228***	0.228***	0.228***	0.237***	0.237***	0.235***
	(0.00325)	(0.00325)	(0.00323)	(0.00622)	(0.00619)	(0.00599)
Observations	334	334	334	334	334	334

Notes: The table presents estimates of differences-in-differences (DD) and triple differences (DDD). Each of the models presented above is from a separate regression, and its robust standard error is directly below in parentheses. The dependent variable in each regression is a canton-mean of a dummy variable =1 if the respondent reported that in the 30 days prior to the survey, there was an illness, accident, burn, toothache, earache, or any other discomfort, even if it was temporary, interacted with a canton-level mean that they sought and received *curative* care. That is, they either visited a hospital, dispensary, health center, or subcenter; or consulted a doctor, healer, etc.; or got care at home from a doctor, nurse, healer, etc.; or had to be admitted to a hospital, clinic, etc. The independent variable of interest is any canton-level exposure to the *Estrategia Médico de Barrio* (EMB)=1 (prior to the endline survey), or alternatively, the proportion of total potential weeks covered by EMB; or the number of EMB staff per 1000 population. The regressions are unweighted. All regressions have canton and year-fixed effects. All models are fully interacted: DD regressions control for main effects, and all DDD regressions control for main effects and all second-order interactions. The estimates of receiving healthcare when needed come from nationally representative surveys: ENSANUT 2012-13 and ENSANUT 2018-19. The standard errors are clustered at the canton level. *, **, and *** represent statistical significance at the 10, 5, and 1 percent levels, respectively.

Appendix Table A5: Panel Estimates of Effect of *Estrategia Medico de Barrio* (EMB) on Any Preventive Care

	(1)	(2)	(3)	(4)	(5)	(6)
Differences in Differences (DD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1	0.00444					
	(0.0100)					
Post=1 x Proportion of total potential weeks covered by EMB		0.0164				
		(0.0220)				
Post=1 x EMB mobile team staff per 1000 population			-0.00438			
			(0.00418)			
Triple Differences (DDD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1				0.0300		
				(0.0213)		
Post=1 x High indigenous concentration=1 x Proportion of total potential weeks covered					0.0393	
					(0.0431)	
Post=1 x High indigenous concentration=1 x EMB mobile team staff per 1000 population						-0.00398
						(0.00875)
Constant	0.0911***	0.0911***	0.0911***	0.0962***	0.0959***	0.0972***
	(0.00253)	(0.00252)	(0.00252)	(0.00450)	(0.00460)	(0.00497)
Observations	334	334	334	334	334	334

Notes: The table presents estimates of differences-in-differences (DD) and triple differences (DDD). Each of the models presented above is from a separate regression, and its robust standard error is directly below in parentheses. The dependent variable in each regression is a canton-mean of a dummy variable =1 if the respondent reported that in the 30 days prior to the survey, they were: checked by a psychologist, dentist, healer, apothecary, or chiropractor, or the neighborhood doctor visited them at home; or they received any preventive service such as vaccinations, well-child check-ups, blood pressure checks, dental check-ups, etc. The independent variable of interest is any canton-level exposure to the *Estrategia Médico de Barrio* (EMB)=1 (prior to the endline survey), or alternatively, the proportion of total potential weeks covered by EMB; or the number of EMB staff per 1000 population. The regressions are unweighted. All regressions have canton and year-fixed effects. All models are fully interacted: DD regressions control for main effects, and all DDD regressions control for main effects and all second-order interactions. The estimates of receiving healthcare when needed come from nationally representative surveys: ENSANUT 2012-13 and ENSANUT 2018-19. The standard errors are clustered at the canton level. *, **, and *** represent statistical significance at the 10, 5, and 1 percent levels, respectively.

Appendix Table A6: Panel Estimates of Effect of *Estrategia Medico de Barrio* (EMB) on Having Preventive Care & Receiving Preventive Care

	(1) Health problem & received preventive care	(2) Health problem & received preventive care	(3) Health problem & received preventive care	(4) Health problem & received preventive care	(5) Health problem & received preventive care	(6) Health problem & received preventive care
Differences in Differences (DD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1	0.00486			-0.000345		
	(0.00484)			(0.00632)		
Post=1 x Proportion of total potential weeks covered by EMB		0.0111			0.00606	
		(0.00848)			(0.0107)	
Post=1 x EMB mobile team staff per 1000 population			-0.000161			0.00210
			(0.00176)			(0.00292)
Post=1 x High indigenous concentration=1				-0.0172**		
				(0.00776)		
Triple Differences (DDD)						
Post=1 x Estrategia Medico del Barrio (EMB)=1 x High indigenous concentration=1				0.0191**		
				(0.00955)		
Post=1 x Proportion of total potential weeks covered by EMB x High indigenous concentration					0.0217	
					(0.0180)	
Post=1 x EMB mobile team staff per 1000 population x High indigenous concentration						-0.00637*
						(0.00355)
Constant	0.0389***	0.0389***	0.0389***	0.0415***	0.0413***	0.0414***
	(0.00119)	(0.00119)	(0.00120)	(0.00200)	(0.00204)	(0.00215)
Observations	334	334	334	334	334	334

Notes: The table presents estimates of differences-in-differences (DD) and triple differences (DDD). Each of the models presented above is from a separate regression, and its robust standard error is directly below in parentheses. The dependent variable in each regression is a canton-mean of a dummy variable =1 if the respondent reported that in the 30 days prior to the survey, there was an illness, accident, burn, toothache, earache, or any other discomfort, even if it was temporary, interacted with a canton-level mean that they sought and received ***preventive*** care. That is, they reported a health problem *and* were subsequently checked by a psychologist, dentist, healer, apothecary, or chiropractor, or the neighborhood doctor visited them at home for prevention care; or they received any preventive service such as vaccinations, well-child check-ups, blood pressure checks, dental check-ups, etc. The independent variable of interest is any canton-level exposure to the *Estrategia Médico de Barrio* (EMB)=1 (prior to the endline survey), or alternatively, the proportion of total potential weeks covered by EMB; or the number of EMB staff per 1000 population. The regressions are unweighted. All regressions have canton and year-fixed effects. All models are fully interacted: DD regressions control for main effects, and all DDD regressions control for main effects and all second-order interactions. The estimates of receiving healthcare when needed come from nationally representative surveys: ENSANUT 2012-13 and ENSANUT 2018-19. The standard errors are clustered at the canton level. *, **, and *** represent statistical significance at the 10, 5, and 1 percent levels, respectively.