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The Bumpy Road to Universal Health Coverage

Access to Primary and Emergency Care
in Rural Tropical Ecuador

Martin Eckhardt

Division of Community Medicine
Department of Medical and Health Sciences
Linköping University, Sweden
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Cover picture: A patient transport arrives from a remote village at the PHC center in La Y de la Laguna. Picture taken by Martin Eckhardt (oral consent concerning publication has been obtained from the depicted persons).

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To my wonderful Anna and Jonathan!

*Live as if you were to die tomorrow.
Learn as if you were to live forever.*
(Mahatma Gandhi, 1869-1948)

*There is only one corner of the universe
you can be certain of improving,
and that's your own self.*
(Aldous Huxley, 1894-1963)

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ABSTRACT

Background: By the turn of the new millennium 84% of families in rural coastal Ecuador had difficulties to access health services. A health reform some years earlier to improve this situation had not been implemented. In 2001, the non-governmental organization (NGO) Foundation Human Nature together with a rural population established a primary health care center in North-Western Ecuador. A public private partnership with the Ministry of Public Health was formed. Services depended on out-of-pocket payments, restricting the poor's access to care. In order to increase access to primary and emergency care, Foundation Human Nature planned to establish a community-based health insurance. In the meantime, a major health reform was initiated by a new government in 2008. It aimed at universal health coverage, providing qualitative services for all based on primary health care, while ensuring protection from financial hardship. The aims of this thesis were to appraise the feasibility of community-based health insurance in Ecuador; to study how rural stakeholders perceived the 2008 reform and its effects on rural health services; to explore the local population's perception of the NGO in service delivery; and to measure the scope and describe the nature of perceived emergencies, the related health care seeking behavior and health expenditure.

Methods: Quantitative and qualitative methods were applied to tackle the research objectives. Data collection for the health insurance study and the study of perceived emergencies was carried out through cross-sectional household surveys. For each of the studies 210 households were sampled with two-stage cluster sampling. Structured questionnaires were used with on the spot household interviews. Focus group discussions with local stakeholders were performed to explore their perceived effects of the 2008 health reform. The population's perception of the NGO was also studied through focus group discussions, which were complemented by key-informant interviews with local stakeholders. Inductive qualitative content analysis, focusing on the manifest content was applied.

Results: 69% of interviewees were willing to join the presented community-based health insurance scheme for 30 US\$ per household and year. Attitudes towards the scheme were positive and 92% of interviewees stated they would increase their health service utilization with affiliation. The implementation of the 2008 health reform was perceived as top-down, lacking communication. However, the reform's effects were mainly perceived as positive with free medical attendance and drugs. Increased service utilization was described as leading to a relative shortage of drugs and appointments. Access problems for remote dwellers were found, who

were described of having to seek private care, also in emergencies. The NGO and its services were perceived positively by the population due to health care improvements in the region. The structure of the public private partnership was unclear, leading to dissatisfaction. Community participation was found to be rather weak. Perceived emergencies occurred to at least 90/1,000 inhabitants in the past year. Fever, traumatic injury and abdominal pain were the most frequent chief complaints. The first contacted providers in 57% of all cases were private for-profit providers, including traditional healers. Public health services treated one third of all cases. Health expenditure was found to be high and catastrophic health expenditure occurred in 24% of all cases.

Conclusions: Prior to the 2008 reform community-based health insurance was found to be feasible in the study region. This financing instrument may have a role in the post-reform system, to cover services that the government does not yet sufficiently provide. The effects of the 2008 reform were mainly perceived positively, but an adjustment of the system is needed to improve the relative lack of drugs and appointments, especially for remote dwellers. Free health services may not be sufficient to reach universal health coverage for patients with perceived emergencies. Changes in public emergency departments and improved financial protection for emergency patients may improve the situation. The NGO's role was perceived positively by the population. A lack of communication about the public private partnership and relatively weak community participation restricted the NGO's full potential and should be improved.

SVENSK SAMMANFATTNING

Bakgrund: Vid millennieskiftet hade 84% av hushållen i Ecuadors kustområde svårigheter att få tillgång till sjukvård. En hälsoreform med syftet att förbättra situationen, vilken antogs några år tidigare, hade inte implementerats. År 2001 byggdes en vårdcentral i nordvästra Ecuador av den icke-statliga organisationen (NGO) Foundation Human Nature i samarbete med den lokala befolkningen. Ett offentligt-privat samarbete i vilket Hälsoministeriet medverkade inleddes. De tjänster som erbjöds på vårdcentralen var avhängiga av patientavgifter, vilket dock begränsade de fattigas tillgång till sjukvård. För att öka tillgången till primär- och akut-sjukvård, planerade Foundation Human Nature att införa en lokal hälsoförsäkring. Kort därefter, år 2008, initierade en ny regering en stor hälsoreform i Ecuador. Den syftade till att införa "*universal health coverage*" dvs en allmän hälso- och sjukvård. Den skulle erbjuda hälso- och sjukvård främst baserad på primärvård av hög kvalitet till alla invånare, oavsett deras ekonomiska resurser. Syftet med denna avhandling har varit att utforska möjligheten att införa en lokal hälso- och sjukvårdsförsäkring i ett land som Ecuador; att studera hur representanter från lokalbefolkningen upplevde 2008 års hälsoreform och dess effekter på sjukvårdstjänsterna på landsbygden. Vidare att utforska lokalbefolkningens uppfattning om hur NGO:n tillhandahåller sjukvårdstjänster; samt att mäta omfattningen av hälsoproblem i befolkningen som upplevts vara akuta, beskriva dessa akuta fall, hur och var de sökt sjukvård och vilka kostnader dessa fall lett till.

Metoder: Både kvantitativa och kvalitativa metoder har använts för att besvara forskningsfrågorna i delstudierna. Datainsamlingen för studien om hälsoförsäkring respektive studien om akutsituationer genomfördes som tvärsnittsstudier baserade på enkäter riktade till hushåll. För båda dessa delstudier bestod urvalet av 210 hushåll som utvaldes med hjälp av två-stegs klustersampling. Strukturerade frågeformulär användes vid intervjuerna som genomfördes i hemmen. Fokusgrupper med lokala aktörer genomfördes för att utforska deras uppfattning om 2008 års hälsoreform. Lokalbefolkningens uppfattning om NGO:n studerades också med hjälp av diskussioner i fokusgrupper, som kompletterades med intervjuer av lokala nyckelpersoner. Kvalitativa data analyserades med induktiv kvalitativ innehållsanalys med fokus på det manifesta innehållet.

Resultat: 69% av alla som intervjuades var beredda att delta i den föreslagna, lokalt baserade hälsoförsäkringen för en kostnad på 30 US Dollar per hushåll och år. Det framkom positiva attityder till förslaget om hälsoförsäkring och 92% av de som intervjuades hävdade att de skulle öka

sitt användande av hälsotjänsterna om de skulle teckna hälsoförsäkringen. Införandet av 2008 års hälsoreform uppfattades som styrt ovanifrån och dessutom bristfälligt kommunicerat. Emellertid uppfattades effekterna av reformen huvudsakligen positivt med fri tillgång till läkarbehandling och läkemedel. Ökad användning av hälsotjänster beskrevs leda till viss brist på läkemedel och läkartider, särskilt för invånarna i de mer avlägsna delarna av regionen. Det framkom att dessa individer tvingades söka privat sjukvård, även vid akuta situationer. NGO:n och dess tjänster uppfattades som positiva av lokalbefolkningen, på grund av förbättringar i regionens sjukvård. Strukturen i det offentligt-privata samarbete var dock oklar, vilket ledde till missnöje. Lokalbefolkningens deltagande visade sig vara något svagt. Upplevda akuta vårdssituationer förekom för åtminstone 90/1,000 invånare under det sista året. Feber, traumatisk skada och buksmärta var de vanligaste sökorsakerna. I 57% av fallen var den första vårdgivaren som kontaktades en privat aktör med vinstintresse, inklusive folk- och alternativmedicin. Den allmänna sjukvården behandlade en tredjedel av fallen. Kostnaderna för hälsovården vara höga och katastrofala privata sjukvårdsutgifter drabbade 24% av alla hushåll som hade upplevt ett akut sjukdomsfall.

Slutsatser: Innan 2008 års reform infördes, drogs slutsatsen att en lokalt baserad hälsoförsäkring var möjligt att implementera. En sådan hälsoförsäkring skulle även kunna ha betydelse i sjukvårdssystemet som följt efter reformen, bl a för att täcka tjänster som den offentliga statliga vården ännu inte tillhandahåller. Effekterna av reformen från 2008 uppfattades i huvudsak vara positiva av medborgarna. Men det framkom behov för anpassning av systemet, för att förbättra den relativa bristen på läkemedel samt utökade tider för läkarkonsultationer, speciellt för invånarna i de mer avlägsna delarna av regionen. Kostnadsfri sjukvård är möjligtvis otillräcklig för att uppnå en allmän hälso- och sjukvård för de patienter som upplever akuta sjukdomssituationer. Ändringar i de offentliga akutmottagningarna och förbättrat finansiellt skydd för akutpatienter skulle kunna förbättra situationen. Den roll som NGO:n spelar, uppfattades som positiv av lokalbefolkningen. Bristande kommunikation beträffande det offentligt-privata samarbetet samt relativt litet engagemang från befolkningen, begränsade NGO:n fulla potential och borde förbättras.

LIST OF PAPERS

The present thesis is based on four papers, which the text refers to by their Roman numerals I-IV.

- I. **Eckhardt, M**, Forsberg, BC, Wolf, D & Crespo-Burgos, A 2011, 'Feasibility of community-based health insurance in rural tropical Ecuador', *Pan American Journal of Public Health*, vol. 29, no. 3, pp. 177–184.
- II. **Eckhardt, M**, Carljford, S, Faresjö, T, Crespo-Burgos, A, Forsberg, BC & Falk, M 2018, 'Achieving universal health coverage in marginalized populations: a qualitative study from rural Ecuador', *submitted manuscript*.
- III. Biermann, O, **Eckhardt, M**, Carljford, S, Falk, M & Forsberg, BC 2016, 'Collaboration between non-governmental organizations and public services in health - a qualitative case study from rural Ecuador', *Global Health Action*, vol. 9, no. 32237. doi:10.3402/gha.v9.32237
- IV. **Eckhardt, M**, Santillán, D, Faresjö, T, Forsberg, BC & Falk, M 2018, 'Universal health coverage in rural Ecuador: a cross-sectional study of perceived emergencies', *Western Journal of Emergency Medicine* (In press).

ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ATP	Ability to pay
CHI	Community-based health insurance
CHE	Catastrophic health expenditure
CHW	Community health worker
CI	Confidence Interval
FGD	Focus group discussion
FHN	Foundation Human Nature
Gen. pop.	General population
GDP	Gross Domestic Product
HICs	High income countries
HIV	Human immunodeficiency virus
hr./hrs.	Hour/Hours
IESS-SSC	<i>Instituto Ecuatoriano de Seguridad Social</i> (Ecuadorean Social Security Institute) and <i>Seguro Social Campesino</i> (Farmer's Health Insurance)
Int.\$	International Dollar/s
LAC	Latin America and the Caribbean
LMICs	Low- and middle-income countries
MDGs	Millennium Development Goals
min.	Minutes
MPH	Ministry of Public Health (<i>Ministerio de Salud Pública</i>)
NGO	Non-governmental organization
OOP	Out-of-pocket
PAHO	Pan American Health Organization
PHC	Primary health care
PPP	Public private partnership
SDGs	Sustainable Development Goals
UHC	Universal health coverage
US\$	United States Dollar/s
WHO	World Health Organization
WTJ	Willingness to join

INTRODUCTION

In 2001, I had the opportunity to initiate, plan, fundraise for and construct a primary health care (PHC) center together with residents of a rural region in North-Western Ecuador. The region, locally known as ‘El Páramo’, had until this point not had any health care facility accessible for the general population.

I had encountered the people one year earlier and noticed that they suffered from a variety of communicable and non-communicable conditions like malaria, diarrhea, respiratory infections, gynecological problems, accidents and many more. Hygiene standards were low, family planning almost non-existent. At that time, the closest health facility accessible for the general population was located in the nearest town, which implied traveling up to ten hours away from their homes, over muddy trails and bumpy roads. Many families did not have the means to pay for travels and health care, thus many conditions were left untreated. Stories about children dying from preventable and treatable diseases made me, and the few other volunteers I had recruited, work even harder. They also made me question the biomedical model of health care, which merely focusses on underlying pathology, without regarding social and environmental influences. The PHC center in the village ‘La Y de la Laguna’ started to operate with international volunteers in late 2001, serving 30 villages with the explicit aim to provide health care for everyone in need.

Those early efforts led to the creation of a local health committee and a small international non-governmental organization (NGO), called Foundation Human Nature (FHN). Both organizations together developed the PHC center further. They started public health projects, such as training of community health workers (CHWs) and health outreach and education campaigns in the region. Together they managed to form a public private partnership (PPP) with the Ministry of Public Health (MPH), which started to send a nurse, a doctor and medicines to the center. In order to cover some costs and to not be entirely donor dependent, a small sum, affordable to most, was charged per consultation. Patients also paid for medicines and materials, except for antimalarials, which were financed by the national malaria eradication program (Krisher et al. 2016), and free drugs in the maternity and child care program, when they were available (Chiriboga 2009). Patients who could not pay received free treatment, financed by donations. Those in need were identified by local personnel or health committee members, knowledgeable of the situation in most villages.

I remember sitting in a simple wooden school building in one of the remote villages during an outreach campaign, with a mother and her four children opposite me. The entire family was unmistakably poor, dressed in old, partly broken clothes, and sick. The kids were slim and pale, likely due to intestinal worm infections. Some had skin problems. Their mother also had some health complaints. She looked at me and said “Five Dollars is all I have, how much help can we get for this?” This is called out-of-pocket (OOP) payment at the point of service. It is obviously inappropriate and thanks to international efforts it is gradually vanishing. Nevertheless, it still occurs. Having to decide what help to give and what not to give due to such financial constraints is hard. Luckily, my hands were not completely tied, as the NGO’s donations could be used. Obviously, this did not lead to financial sustainability and could in the long run endanger the entire project. Ideas about a prepaid, solidarity-based financing system emerged. However, no reports about community-based health insurance (CHI) in Ecuador could be found and it was unclear if such an instrument would be feasible. To study its feasibility, scientific methods were employed, which ultimately led to the present thesis.

Health is a basic human right as first declared in the 1946 constitution of the World Health Organization (WHO) and two years later in the Universal Declaration of Human Rights (United Nations General Assembly 1948; World Health Organization 1946). Concrete attempts to put this right in practice have been made for example by the WHO through to the initiative ‘Health for all by the year 2000’ (World Health Organization 1987). The United Nations put forth the current global agenda, the 17 Sustainable Development Goals (SDGs). The SDGs contain one goal on health, SDG 3: “Ensure healthy lives and promote well-being for all at all ages” (World Health Organization 2015, p. 8). An overarching target to achieve this goal is Universal Health Coverage (UHC):

Ensuring that all people can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship (World Health Organization 2015, p. 41).

The latter is known as catastrophic health expenditure (CHE). It usually occurs due to OOP spending on health services (Brinda et al. 2015) and affects the poor and near poor significantly more than richer households (Su, Kouyaté & Flessa 2006; Xu et al. 2003).

According to Olinto and colleagues (2013), nearly 80% of the world’s extreme poor lived in rural areas of low- and middle-income countries (LMICs) by 2010. Ecuador was no exception, with 39.3% of its rural population living below the national poverty line by 2014, compared to

16.4% of the urban population (Instituto Nacional de Estadística y Censos 2017).

In Ecuador the right to health was guaranteed in a new constitution in 1998 (Pan American Health Organization 2007). However, due to various reasons the new policy was not implemented (Baeza & Packard 2006). As a consequence of this, as well as earlier deregulation of the health system, 72% of Ecuadorean families had difficulties to access health services by the turn of the millennium. In rural coastal parts of the country these numbers were as high as 84% (Yépez et al. 2005, cited in De Paepe et al. 2012, p. 221).

These facts and numbers were unknown to me in the early years of my commitment in El Páramo. However, I had seen the consequences of a lack of access to health care and financial protection with my own eyes. After studying the feasibility of community-based health insurance, another constitutional reform took place in 2008. It promised no less than free services of high quality for all Ecuadoreans (Asamblea Constituyente 2008). Given the history of a basically unimplemented reform a decade earlier, I had my doubts about this new attempt. Being a clinician and self-made project manager, I had already started to move from pure activism to a more scientific approach. Consequently, a study about the 2008 health reform was planned.

Through a mix of quantitative and qualitative studies I have tried to capture the complex reality of the rural population's access to health care and possible improvements from different angles. All too often we merely rely on numbers and statistics, which are important but not enough if we want to better understand the needs, perspectives and rationales of the populations we study. By doing so, we risk to remain blind for important aspects that may give us valuable insights and tools to understand and improve their situation.

The present research is intended to create knowledge to further improve health care for rural populations in North-Western Ecuador and similar settings elsewhere, for instance through information to policy makers, project managers, researchers and others. This work has been a long journey on many bumpy roads, in rural Ecuador, as well as in the figurative sense. I truly hope it can make a positive difference for those who are not privileged when it comes to access to primary and emergency care.

BACKGROUND

Rurality in low- and middle-income countries and health

Rural areas and populations

This thesis studied access to health care in rural North-Western Ecuador. In order to clarify the need for the performed studies, certain background information and definitions are necessary. Until recently, the greater part of mankind has lived in rural areas. In 2007, for the first time in history, this changed, with the number of urban dwellers outgrowing rural inhabitants (United Nations 2014). This increase is continuing. In 2014, about 3.4 billion people lived in rural areas around the globe. This number is estimated to be relatively stable until 2020 and is then expected to decline to 3.2 billion by 2050 (United Nations 2014). As will be shown here there is a strong relationship between living in rural areas of LMICs and health.

The majority of the world's rural population live in LMICs, the so called 'developing world', foremost in Asia, followed by Africa. Latin America and the Caribbean (LAC) together with North America have the lowest levels of rural dwellers at around 20% (United Nations 2014). However, several countries in the LAC region have considerably higher numbers, Ecuador being one of them.

LMICs are a heterogeneous group of countries. In 2016, gross national income per capita and year differed between <1,005 US\$ in low income countries, 1,006-3,955 US\$ in lower middle-income countries and 3,956-12,235 US\$ in higher middle-income countries (World Bank 2018c). In addition to differences in income, LMICs tend to differ from high income countries (HICs) in demography (Sudharsanan & Bloom 2018), epidemiology (World Health Organization 2014), the occurrence of violent conflicts (Roberts & Browne 2011; World Bank 2018a), labour markets and welfare systems (Berens 2013; Schneider, Buehn & Montenegro 2010) amongst others. Health systems in LMICs are often affected by limited human, infrastructural and financial resources and tend to lack coherence because of multiple actors with different agendas (Cabieses & Bird 2014; Global Burden of Disease Health Financing Collaborator Network 2017).

According to the United Nations Statistics Division (2017), there is no single definition of the term 'rural area' applicable to all countries. Tradi-

tionally, rural areas have been described as generally having lower living standards in comparison to urban areas. In HICs this is no longer true. Details concerning the situation in LMICs are described in the following sections. Further distinguishing features between rural and urban areas are density of settlement, percentage of the economically active population employed in agriculture, general availability of electricity and/or piped water and accessibility to e.g. medical care and schools. Countries in world regions that are lacking recommendations of how to define ‘rural area’ have to develop their own definitions (United Nations Statistics Division 2017). This lack of a coherent definition has to be kept in mind when making international comparisons.

The rural poor and declining poverty

As mentioned above, by 2010 the majority of the world’s poor lived in rural areas of LMICs. Almost two thirds of them were working in small scale farming (Olinto et al. 2013).

Being extremely poor is defined as living below the international poverty line of Int.\$ 1.9 per person per day. The currency is the international dollar, a hypothetical currency which is converted to national price levels using purchasing power parities (World Bank 2015). It is used to make cross-country comparisons more accurately, e.g. “that two people living in different countries but with the same real standard of living are treated the same way” (World Bank 2013, p. 637). The approach of setting the international poverty line is a complex task which has sparked many methodological disputes (Jolliffe & Prydz 2015). When a certain country is of interest and the aim is not to do cross-country comparisons, the national poverty line should be used. Its definition depends on the particular country’s social and economic situation (World Bank n.d.).

Globally, the estimated number of people living in extreme poverty has fallen from 1.7 billion in 1999 to 767 million in 2013 (United Nations 2017). Nevertheless, these numbers do not capture people who are slightly better off. They are living with the risk to fall below the poverty line because of economic shocks to their households, for example due to the cost of illness (Xu et al. 2003).

Rural health care between horizontal and vertical programs

Inhabitants of rural areas in LMICs depend on rural health services, which are part of the district health system. A district is the most peripheral governmental unit, its borders are clearly defined and its typical population size is between 50,000 and 300,000 inhabitants. The district health system, a part of the national health system, comprises govern-

mental and non-governmental actors, such as private providers and NGOs. It is based on PHC, but includes all health care activities, from personal health practices to the first level of referral, the district hospital (Tarimo 1991). In the 1987 Harare Declaration, the WHO called for the strengthening of this system in order to achieve 'Health for all by the year 2000' (World Health Organization 1987).

During the first 15 years of the new millennium the Millennium Development Goals (MDGs) shifted the focus from the horizontal 'Health for all' concept to vertical programs on specific diseases such as HIV and malaria. The integration of the two approaches proved to be difficult to implement (Cobos Muñoz et al. 2017). An example of the vertical approach is the Ecuadorean malaria eradication program, as mentioned in the introduction of this thesis. For patients who do not suffer from the specific disease, a vertical program may appear unfair and lower their trust in the health system. Exceptions can be well designed vertical programs that lead to strengthening of the health system (Abejirinde et al. 2018).

The MDG era ended in 2015. Despite impressive progress in health and other areas, many MDGs had not been achieved. Thus, there was a clear need for a post MDG agenda. This need was filled by the ambitious SDGs, which the international community wants to achieve by 2030 (Solberg 2015; World Health Organization 2015). SDG 3, the goal for health, comprises 13 targets, e.g. to decrease premature mortality from noncommunicable diseases by one third and to end preventable deaths of newborns and children under five years of age. Other SDGs and targets are linked directly or indirectly to the health goal, e.g. ending poverty and achieving universal access to drinking water (World Health Organization 2015). As will be shown below, the state of rural health and health services is lower, compared to the situation in urban areas. If the international community truly wants to achieve the health related SDG targets, special efforts will have to be made to improve the living situation of poor rural populations and the health systems they have at their disposal.

Universal health coverage in rural households

As shown on page eight, UHC is an important underlying prerequisite to reach all other health related targets of the SDGs. It is an important, but not a new concept. The idea of universal health coverage already emerged in health care reforms in 19th century Germany, later spreading to other parts of Europe (Abihiro & De Allegri 2015).

In scaling up UHC, three dimensions need to be considered as figure 1 shows: the population covered, the types of services covered and the costs covered (World Health Organization 2015, p. 42).

Figure 1. Universal health coverage and its three dimensions

Source: World Health Organization 2015, p. 42

The protection from financial hardship, or catastrophic health expenditure (CHE), is a central element of universal health coverage. CHE is usually caused by out-of-pocket spending on health services. In 2008, the 5.6 billion people living in LMICs had to pay at least half of their health expenditure out-of-pocket (World Health Organization 2008), which illustrates the need for financial risk protection.

Different definitions of CHE have been proposed and used (Ruger 2012; Wagstaff & van Doorslaer 2003; Xu et al. 2003). A widely used definition is that a household incurs financial catastrophe when its health expenditure exceeds 40% of its ability to pay (ATP), which is the remaining income after meeting basic subsistence needs (Xu et al. 2003; Su, Kouyaté & Flessa 2006). Using this threshold, a multi-country analysis found that every year around 150 million people suffer CHE around the globe (Xu et al. 2007). Several authors have found that poor rural households have a significantly higher prevalence of CHE compared to urban and/or richer households (Khan, Ahmed & Evans 2017; Knaul et al. 2011; Qin et al. 2017; Sesma-Vázquez et al. 2005). An important point to keep in mind is that households whose members do not seek health care despite needing it, cannot incur CHE (Xu et al. 2007). However, they may face another catastrophe, due to unnecessary suffering, disability and/or death.

Health in rural areas and implications for health care

According to the World Health Organization (1946, p. 1), health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Even if health is a basic human right there are several differences between rural and urban populations.

First of all, there are differences in how rural and urban populations view health. Gessert and colleagues (2015), in a literature review on the topic in HICs, found that rural populations place greater value on functional independence, their ability to work and to fulfill their social roles. Moreover, they have a higher acceptance of ill health than urban dwellers. However, evidence from LMICs is lacking (Gessert et al. 2015).

Besides poverty being more widespread in rural compared to urban areas in LMICs, the health status and life expectancy of rural inhabitants has been found to be lower, compared to their urban peers (Strasser, Kam & Regalado 2016). This includes children’s physical growth (Paciorek et al. 2013), under-five mortality (World Health Organization 2015), death rates from breast cancer (Leung et al. 2014) as well as disability and all-cause mortality amongst older adults (Zhang et al. 2017).

The same pattern can be seen concerning disease prevention. In regard to access to drinking water and improved sanitation facilities the rural poor are lacking significantly behind the urban population (World Health Organization and United Nations Children’s Fund 2015). Vaccination coverage (Al-Taiar et al. 2010) as well as supply and use of contraceptions (Papo et al. 2011) have also been found to be negatively associated with rurality. Fertility rates are higher in rural compared to urban areas (Population Reference Bureau 2015). These facts imply that basic infrastructure as well as effective preventive and curative health services need to be strengthened in rural areas of LMICs.

Nevertheless, technical standards of rural health services are often lower compared to those in urban areas (Cronk & Bartram 2018; Dalglish, Poulsen & Winch 2013). In addition, the health workforce is concentrated in urban areas (Targa, Couper & Worley 2014; World Health Organization 2015). The inverse care law as described by Hart (1971, p. 412) seems to be at work here: “The availability of good medical care tends to vary inversely with the need for it in the population served.”

Primary health care

While health as a human right was established in the 1940s the idea of universally accessible PHC was formally outlined in the declaration of

Alma-Ata (World Health Organization 1978). PHC aims to address the main health problems in the community. According to the declaration, PHC should be governed by equity and community participation and work together with other sectors concerned with both national and community development. Primary health care should provide health education, advocacy of appropriate nutrition, immunizations, supply of safe water and sanitation, prevention and control of communicable diseases, maternal and child care including family planning, treatment of common diseases and injuries and the provision of essential drugs (Tarimo 1991).

Health systems that focus on PHC have proven to be more equitable, have higher quality of care, better population health and lower expenditures (Strasser, Kam & Regalado 2016). Some examples are Costa Rica and Brazil, which, after creating universal access to PHC, experienced immense drops in infant mortality, even after controlling for all other determinants of health (Tejerina Silva et al. 2009).

Medical emergencies in rural areas

Medical emergencies can occur anywhere and anytime. On the global level, the mortality from pediatric, infectious and maternal conditions, as well as injuries is highest in LMICs. Many of those conditions can be effectively treated through urgent and low-cost interventions (Anderson et al. 2012; Krug, Sharma & Lozano 2000). In rural areas of many LMICs, prehospital care, such as ambulance services, is typically not available (Nielsen et al. 2012). Due to the structure of the health district, the geographically closest health care facilities for rural emergency patients are often PHC centers. Besides, in most LMICs, effective emergency medicine systems are often absent (Kobusingye et al. 2005; Obermeyer et al. 2015). This explains why emergencies get treated anywhere in the health system, including in the PHC setting (Hsia et al. 2010; Levine et al. 2007). Where referral is inappropriate, e.g. due to absence of financial, human and technical resources, bad roads, remoteness and/or weather conditions, PHC personnel need to carry out prolonged emergency care (Duke & Cheema 2016; Levine et al. 2007). Given those facts, in the present thesis medical emergencies in rural areas of LMICs get conceptually included into primary health care.

In studies involving health professionals, the term ‘medical emergency’ needs to be defined according to professional criteria. The definition is usually based on altered physiology and threat for life, organs or limbs (Bustos-Córdova et al. 2005). Yet, this will not be helpful in population based studies, where a patient, or someone who takes care of a patient needs to decide if the current health problem is an emergency or not.

When medically untrained persons take such decisions, they tend to base their perceptions on the pattern of symptom onset, advice of laymen and psychosocial factors (Morgans & Burgess 2011).

Access to health care

Defining access to health care

Access to care is an important concept, as certain population groups (the poor, the most vulnerable, women etc.) frequently have less access to needed services compared to more advantaged groups. It is an important health policy goal in LMICs and HICs (McIntyre, Thiede & Birch 2009) and definitely in rural areas. Thus access to health care needs to be guided by equity, leading to “equal access to health care by those in equal need” (Oliver & Mossialos 2004, p. 655). Russel and colleagues (2013) add that access should finally bring equitable health outcomes.

At a quick glance access to health care may appear as a quite straightforward term, but it has been frequently defined, modeled, debated and disputed (Ricketts & Goldsmith 2005). It is a complex, multidimensional concept and despite the further development of definitions and models, it is not surprising that there is no single clear definition of the term.

Nevertheless, a widely accepted underlying base for the concept of access is the timely use of services according to need (Campbell 2000) or as Russel and colleagues (2013, p. 62) put it “the potential ease with which consumers can obtain health care at times of need.” This indicates that access to health care involves individuals with a (perceived) health care need - the demand side or patient perspective. Furthermore, it involves a service - the supply side or health service perspective. The interface between the two is the possibility to receive the service (Russel et al. 2013) or the actual, time critical ‘use’ of health services (Campbell 2000). Both perspectives are attended to in this thesis.

Relevant models of access to health care

There are many different models and frameworks of access to health care (Levesque, Harris & Russell 2013; Peters et al. 2008, Russel et al. 2013). As will be shown, the interpretation of access depends on the specific social, economic and cultural context, the health system context (Cabieses & Bird 2014) as well as the perspective and focus of those developing and applying the concept (Obrist et al. 2007). Here I will describe the development of different models that have been useful to outline the research of this thesis and how they are connected.

Access as ‘degree of fit’ or as empowerment

How well the health service meets the needs of the individual has been described by Penchansky and Thomas (1981) as the ‘degree of fit’. They introduce five dimensions of access: 1. Availability (services, resources, programs etc.); 2. accessibility (location of services and clients, including transportation resources, travel time etc.); 3. accommodation (organization of services to receive clients); 4. affordability (ATP, health insurance, costs etc.) and 5. acceptability (clients’ attitudes about provider characteristics and vice versa). This model has been developed further by McIntyre, Thiede and Birch (2009) who combine accessibility, accommodation and availability into one dimension. Their model contains underlying ‘root causes’, such as type of health staff, their training and power relations. Access gets described as empowerment to use health care. The authors emphasize that empowerment has to be considered in a broad framework and that all dimensions have to be addressed in order to achieve access.

Access as health behavior

A different approach has been developed by Aday and Andersen (1974), who focus on service utilization and consumer satisfaction. They describe the characteristics of the population at risk as predisposing factors (age, sex, religion, values concerning health and illness etc.), enabling factors (income, insurance, place of residence etc.) and need factors (illness level, perceived by the individual or professionally evaluated). Later, Andersen (1995) developed the model further and included factors regarding the health system as well as the physical, political and economical environment. He included feedback loops, meaning the influence of actual outcomes such as perceived and evaluated health status and consumer satisfaction on subsequent predisposing factors, perceived need and health behavior. He views it as a process of learning or adaptation of the individual service user.

Based on Andersen’s model Irfan, Irfan and Spiegel (2012) developed a healthcare barrier model, studying barriers to accessing surgical care in Pakistan. Besides patient level factors as described by Aday and Andersen (1974), they include factors concerning the environmental level (e.g. public government and law), health systems level (governance, information, physical and human resources, financing and service delivery) and provider level factors (knowledge, skills, professionalism, traditional providers, financial considerations, communication and provider gender). Hence, this model has a much stronger and detailed focus on supply side factors and how they can be improved, something that will prove to be an important part of this thesis.

Access in the livelihood framework

Focusing on poverty, vulnerability and access to health care, Obrist et al. (2007) introduce the concept of livelihoods, based on work by Chambers (1995) and others. Livelihoods are described as human, social, natural, physical and financial capital. Vulnerability means the absence of control over factors such as politics, the economy, technology, climate (including disasters), epidemics and conflicts. The model includes the five dimensions of access as introduced above (Penchansky & Thomas 1981) as well as health services and the individual. It adds the ability to mobilize livelihood assets in a context of vulnerability as a critical feature to gain access to health care. Furthermore, the authors highlight quality of care in order to achieve positive health outcomes (Obrist et al. 2007). In a setting such as the one studied in this thesis, the recognition of livelihoods and vulnerability are important elements in order to understand access to care.

Access between supply and demand

The models described above appear to be the most influential and widely used, especially concerning interventions and research in LMICs. They show how complex the concept of ‘access to health care’ is. In a recent publication Levesque, Harris and Russel (2013) tried to bring more clarity into the discussion. They developed previous models further and proposed a patient-centered approach concerning access, including demand side and supply side factors. The access model used in the present thesis integrates the approach by Levesque et al. (2013) with elements from Andersen (1995) and Obrist et al. (2007). It is shown in figure 2.

On the demand side, five abilities are necessary for access:

- ∞ Ability to perceive: Relates to people’s health literacy and beliefs as well as trust and expectations in health services.
- ∞ Ability to seek: Describes the autonomy of the individual to make a care seeking choice according to one’s own personal and social values, culture and gender.
- ∞ Ability to reach: The mobility of the individual, but also the ability to get free time (e.g. from work) to seek care.
- ∞ Ability to pay: The capability of the individual or household to generate economic resources to purchase health services, without incurring catastrophic health expenditures.
- ∞ Ability to engage: The motivation and participation of the individual in decisions related to her or his own health care or the care of dependent individuals (e.g. children, elderly in need of support).

Those abilities are related to the five dimensions of access on the supply side:

- ∞ Approachability: Is information about available services and outreach provided to the community in a transparent way?
- ∞ Acceptability: Is the service in a socio-cultural way acceptable to all population groups?
- ∞ Availability and accommodation: Does a productive health service exist and is it reachable in a timely manner and concerning the physical distance (sometimes called ‘accessibility’)? Are providers present and opening hours, contact and appointment procedures organized in a way that the service can be reached?
- ∞ Affordability: Are direct, indirect and opportunity costs affordable to service users?
- ∞ Appropriateness: Does the service fit to the users’ needs? Is it adequate and how is the technical and interpersonal quality? Is there continuity of care?

Figure 2. Access model

Sources: Levesque et al. 2013; Obrist et al. 2007; Andersen 1995

This complexity explains why studies concerned with access usually focus on some dimensions or aspects and never the entire picture. The model shown in figure 2 shows access to care in the wider and dynamic framework between (health) policy, organizations etc. on one side (uppermost part of the model) and the population's living situation on the other (lowermost part). Health care services are influenced by policies, organizations etc. and so is the living situation of the population, their context of vulnerability and livelihood assets. Access to care happens in this broader context and gets influenced by the above outlined dimensions from the supply side and the abilities of the demand side. The entire course of access to care affects the patient's or caretaker's access in a subsequent episode through a learning process. Economical and health outcomes influence livelihood assets.

Improving access to rural primary health care

Figure 2 shows that there is a wide range of possible interventions and tools to improve access to rural health care. To describe all of them is beyond the scope of this thesis. However, essential measures that are relevant to this research project are described in more detail below.

National health reform

National health reforms with a focus on primary health care are powerful tools to improve access to health care for the rural poor (World Health Organization 2008). Important prerequisites for such reforms are strong political will, good stewardship and societal support (Carrin et al. 2008). The World Health Report 2008 outlines four sets of reforms to improve PHC and the access to it: Universal coverage reforms, service delivery reforms, public policy reforms and leadership reforms (World Health Organization 2008):

- ∞ Universal coverage reforms can pool funds via taxes, social health insurance or a combination of both. It is important to move away from user fees paid at the point of service and towards pre-paid contributions according to people's ATP. Those reforms need to work on expansion of the three dimensions shown above in figure 1 (p. 13). Social health insurances pool funds from mandatory contributions of wages, usually from employers and employees. They exist as (semi-)autonomous entities and give the insured population a clear set of benefits. Tax-based systems cover in principle the entire population, but cannot always rely on a stable budget, as they compete with other sectors about the general budget (Gottret & Schieber 2006).
- ∞ Service delivery reforms aim to put people and their health needs in the center of health care, which gets delivered in continuity and close to their homes. Primary care providers are supposed to serve a clearly

defined population and become the coordinators between clinical specialists and social services, while people are partners in managing their health and the health of their community.

- ∞ Public policy reforms can be divided into three groups: health system policies - concerned with essential drugs and technology, human resources, quality control and so forth; public health policies - concerned with priority health problems, prevention, health promotion and rapid response capacity to fight outbreaks and disasters; and 'health in all policies' - meaning health related issues in other areas, such as education, labor, transport etc. Those are beyond the direct control of health policy makers, but can still be influenced via cross-sectoral action in order to contribute to health.
- ∞ Leadership reforms focus on finding the right balance between two extremes, 'control and command' on the one hand and 'letting things take their own course' on the other hand. They need to work towards a participatory policy dialogue for PHC reforms, involving a broad number of stakeholders such as professional and civil society organizations, politicians, scientists and donor organizations.

Such reforms are continuous processes which need careful monitoring and adjustments along the way. They take many years but are ultimately the most powerful way to respond to the rising demand by populations for equitable and effective health care (World Health Organization 2008).

Ridde and Morestin (2011) reviewed 20 studies on health reforms aimed at the abolition of user fees in sub-Saharan African countries. They found positive effects on service utilization, but point out that preparation and implementation processes were deficient regarding information and participation of stakeholders and communities (Ridde & Morestin 2011). Many LMICs have segmented health systems with social health insurance for the formally employed and their families and services from the Ministries of Health aimed at those who are not formally employed. Wagstaff and colleagues (2015) examined 20 Latin American countries and found that countries with a single integrated health system are closer to UHC than countries with semi-integrated systems or those that yet have to start the integration process.

Community-based health insurance

Where national health financing systems are still absent or not well functioning, community-based health insurance (CHI) can be a possible solution in order to move away from out-of-pocket payments for health care, especially for the rural poor (Fadlallah et al. 2018; Ranson 2002). CHI schemes provide risk pooling of community resources, usually on a volun-

tary basis. They are non-profit arrangements and work through prepayment, on the individual or household level. In return, they pay for specific health services, called the benefit package (Fadlallah et al. 2018).

There is a large body of scientific literature on CHI schemes, their impact and weaknesses. Two bigger review articles found evidence that CHI schemes can reduce OOP spending and increase health care utilization rates (Ekman 2004; Spaan et al. 2012). Spaan and colleagues (2012) report furthermore that CHI can increase quality of care and lead to social inclusion of vulnerable groups. On the other hand, some researchers have found that CHI schemes have little impact on sustainable financing due to meager risk pools (Adebayo et al. 2015; Carrin, Waelkens & Criel 2005; Ekman 2004). Umeh and Feeley (2017), in a review of 49 schemes found that the poor lacked equitable access to health care and proposed measures to improve the situation, whereas Ekman (2004) points out that CHI schemes can lead to the exclusion of the poorest. Adebayo and colleagues (2015) reviewed 25 CHI schemes and state that benefit packages are often limited, which creates the risk for OOP expenditures for services that are not included. However, the authors conclude that if reasons for failing schemes are carefully addressed, CHI may help to cover large rural communities on the way to universal health coverage (Adebayo et al. 2015), which gets supported by Carrin and colleagues (2008). The development of umbrella organizations for such schemes, national guidelines and accreditation processes as well as partnerships with governments and academia may be helpful for the expansion of CHI (Ron 1999).

Non-governmental organizations

Globally, a huge number of national and international NGOs are working in the field of health and development in LMICs. They are moving billions of United States Dollars (US\$) each year, yet exact figures are unknown (McCoy, Chand & Sridhar 2009). Those organizations assist people in need, where local government's capacity is still too weak (Brown & Moore 2001; Gellert 1996). International NGOs can be defined as organizations formed by members of the civil society of a relatively wealthy country, where they are typically incorporated; they usually work not-for-profit in at least one LMIC, independent from its government (Edwards 2000; NGO Code of Conduct for Health Systems Strengthening Initiative n.d.).

NGOs working in health usually have one or more of the following functions: health service delivery, capacity building, research, social welfare and influencing policy (Brown & Moore 2001; Gilson et al. 1994). Evidence exists that NGOs can improve health care access and service quality for poor rural populations (Ahmed et al. 2006; Gilson et al. 1994; Levin & Kaddar 2011; Mercer et al. 2004). They tend to be flexible, cost-effective,

have focus on community participation and work close to the poor (Ejaz, Shaikh & Rizvi 2011; Lewis & Kanji 2009; Obiyan 2005). On the other hand, NGOs are often donor dependent and hence accountability may be shifted away from the population they serve. Institutional weakness and problems with sustainability are other issues that have been observed (Obiyan 2005; Stefanini 1995). Furthermore, NGO driven projects can lead to the fragmentation of PHC systems due to lack of coordination between NGOs and the government (Pfeiffer 2003).

To overcome some of these issues, NGOs need to work in close relationship with public services (Dickson 1997; Ejaz, Shaikh & Rizvi 2011; Pan American Health Organization 2006). Such cooperations are known as PPPs, public private partnerships (Whyle & Olivier 2016). ‘Private’ can stand for non-profit and for-profit entities. Kickbusch and Quick (1998, p. 69), on behalf of the WHO, state that “partnerships for health bring together a set of actors for the common goal of improving the health of populations based on mutually agreed roles and principles.”

The term, however, is used for a wide range of partnerships. These range from global PPPs for the delivery of vaccines and medicines, such as the Global Alliance for Vaccines and Immunizations (Buse & Harmer 2007), over hospital management (McIntosh et al. 2015) to pro-poor initiatives with a wide range of activities, such as income generation and access to safe drinking water (Khanom 2011). In a systematic review from Southern Africa, researchers found eight different types of such arrangements (Whyle & Olivier 2016). Hereinafter, the term PPP gets used only for public health services involving government and NGOs. Successful examples of PPPs are governments contracting NGOs to deliver PHC services (Loevinsohn & Harding 2005), which has been found to increase quality and to be cost-effective (Bishai et al. 2008). Nevertheless, broader evidence on such PPPs in the literature is scarce (Whyle & Olivier 2016).

Ecuador

Country description

Located in the North-Western part of South-America, Ecuador is the smallest of the Andean countries. Its land extension is 256,370 km². It is bordering Colombia in the North, Peru in the South and East and the Pacific Ocean in the West. The Andes stretch from North to South through the country and divide it into three zones, with the Amazon region in the east and the coastal lowlands in the West (map 1). The Galapagos islands, about 1,000 km off the cost, belong to Ecuador.

Map 1. Ecuador

Source: www.maphill.com

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In 2016, this multi-ethnic country had 16 million inhabitants (World Health Organization 2018a). In the 2010 census, about 72% of the population identified themselves as Mestizos (mix of Indigenous and Caucasian origin), the remaining 28% were almost evenly spread between Indigenous (various ethnic groups), Montubios (inhabitants of the coastal areas), Afro-Ecuadoreans and Caucasians (Instituto Nacional de Estadística y Censos n.d.).

Recovering from periods of military dictatorship in earlier decades, Ecuador, as many other Latin American countries, went through an economic crisis in the 1980's, a period which later was called 'the lost

decade' (Fraga 2004). This led to the so called Washington Consensus, an initiative of macroeconomic reforms introduced by the International Monetary Fund and the World Bank. Those reforms, often referred to as 'neoliberal' (Rasch & Bywater 2014), generally aimed for a liberalization of trade and foreign investment, fiscal discipline and privatization (Council on Hemispheric Affairs 2005). They failed to reach their overall goals (Moreno-Brid, Pérez Caldentey & Ruiz Nápoles 2004).

In combination with yet another major economic crisis in the 1990's, Ecuador's social inequality, exclusion and poverty had deepened at the beginning of the new millennium (Larrea 2004). In 2000, the government adopted the US\$ as the only national currency, a measure that somewhat stabilized the situation, but in return created new economical challenges (Larrea 2004). Between 1992 and 2006, the country, which is a presidential republic, went through political instability. It had eight different governments, even more ministers of health and short periods of social unrest (De Paepe et al. 2012; Pan American Health Organization 2008). After the election of a left-wing government in late 2006, Ecuador gave itself a new constitution in 2008, initiating major reforms in many public sectors (Asamblea Constituyente 2008). The era was called the 'citizens' revolution' (Rasch & Bywater 2014). High oil prices between 2006 and 2014 led to economic growth during this period (World Bank 2018b). Ecuador's main exports are petroleum, bananas, cut flowers, shrimp, cacao, coffee, wood and fish (Central Intelligence Agency 2018).

According to the World Bank income classification, Ecuador is a higher middle income country (World Health Organization 2018a). Its Human Development Index for 2015 was 0.739, placing it on rank 89 out of 188 countries (the index is a summary of three indicators, measuring human development: life expectancy at birth; adult's mean years of schooling and children's expected years of schooling; and Gross National Income per capita [United Nations Development Programme 2016]). The inequality index (Gini coefficient), which measures the gaps in income equality (where 0 stands for absolute equality and 100 for absolute inequality) has been steadily declining since 1999. By then, it was 58.6 and fell to 45.0 in 2016 (Federal Reserve Bank of St. Louis 2016). For comparison, in the 2010-2015 period, South Africa had the highest income inequality with an index of 63.4 and Norway the lowest with 25.9. In the LAC region Peru had 44.1, Colombia 53.5 and Haiti 60.8 (United Nations Development Programme 2016). By 2017, 21.5% of the population lived under the national poverty line of 84.49 US\$ (extreme poverty 47.62 US\$) per person and month (Instituto Nacional de Estadística y Censos 2017).

Ecuador's health profile

Life expectancy at birth is 74 years for men and 79 years for women. The total fertility rate per woman 2.6. The leading causes of death are ischaemic heart disease, stroke, lower respiratory infections and road injuries. The burden of disease is highest for noncommunicable diseases including neuro-psychiatric conditions, followed by unintentional injuries. Infectious diseases including malaria, tuberculosis and HIV, contribute less to the total burden of disease, but still play an important role (World Health Organization 2018a). Thus, as many other countries in demographic and socio-economic transition, Ecuador is suffering from a double burden of disease, putting pressure on its health system (Boutayeb 2006).

During the MDG era, the country has made remarkable improvements concerning most goals. It has for example more than halved the proportion of people living in extreme poverty. The under-five mortality rate has been reduced by almost two thirds and the maternal mortality ratio by half. The percentage of the population living without improved sanitation and access to safe drinking water has been more than halved. However, universal access to reproductive health and HIV/AIDS treatment has not been achieved. (United Nations 2015).

Rural-urban differences

The National Institute for Statistics and Census defines rural area as “human settlements with less than 2,000 inhabitants” (International Labour Organization n.d., p. 3; International Labour Organization 2016). In 2013, 37% of the population lived in rural areas (World Health Organization 2018a), clearly more than the average of 20% in the LAC region (United Nations 2014). Examining detailed indicators, it gets clear that Ecuador is no exception concerning the above outlined divide between urban and rural areas (Instituto Nacional de Estadística y Censos 2017). As mentioned above, catastrophic health expenditures are more prevalent among the rural population. A study comparing such expenditure between 12 Latin American countries found that Ecuador (together with Bolivia, Colombia, Mexico and Nicaragua) had the largest difference of CHE between rural and urban areas, with a two to four times higher prevalence in rural compared to urban households (Knaul et al. 2011). Improved drinking water sources were used by 93% of the urban, but only 76% of the rural population. Concerning the use of improved sanitation facilities the divide was lesser, with 87% of the urban and 81% of the rural population using such facilities (United Nations 2015). Access to reproductive health services were lower for rural women compared to their urban peers (Goicolea, San Sebastián & Wulff 2008). A study comparing stunting in children (low length-for-age) between urban and rural areas in

the Ecuadorean highlands found an alarmingly high prevalence of 37.4% in the rural, compared to 17.7% in the urban setting (Ortiz et al. 2013).

The Ecuadorean health system

The Ecuadorean health system underwent major changes since 2008, when the newly elected government initiated a large-scale health reform (Asamblea Constituyente 2008; Malo-Serrano & Malo-Corral 2014). To put this reform into its context and to understand the health system during the years of this research project, the pre-reform situation is explained below, followed by a description of the post-reform health system.

Pre-reform situation

In the 1990's and early 2000's Ecuador's health system was widely deregulated. Many reform proposals had never been taken further due to unclear roles and conflicts between the involved institutions. The role of the Ministry of Public Health (MPH) was weak and the private sector was growing fast and benefitted economically. The constitutional mandates of the two main public providers, the MPH and the Social Security Institute (*Instituto Ecuatoriano de Seguridad Social* including the Farmer's Health Insurance, *Seguro Social Campesino*, IESS-SSC) were widely overlapping (De Paepe et al. 2012). This had led to the creation of parallel systems (Pan American Health Organization 2008). Physicians in the public system had managed to reduce their working time to four hours per day, many provided private services on the side. Waiting times for public services were long and almost two thirds of the general population perceived their quality to be low (De Paepe et al. 2012).

As briefly mentioned in the introduction (p. 9), the Ecuadorean constitution from 1998 stated that health is a right and that access to health care by people in need must be uninterrupted (Pan American Health Organization 2007). However, this was policy on paper which was never implemented (Baeza & Packard 2006). Thus, it is not surprising that the majority of Ecuadoreans had difficulties to access health services (Yépez et al. 2005, cited in De Paepe et al. 2012, p. 221). One exception was the free maternity and child care law. It led to the increase of utilization of such services and consecutively neonatal mortality decreased (Chiriboga 2009). Examining national data from 2004, López-Cevallos and Chi (2010) found that poor and rural households had a lower likelihood to use curative and preventive services. In the same year, 64% of the entire health revenue was financed by OOP payments, one of the highest rates in the LAC region (World Health Organization 2018b). The poorest quintile had higher rates of such expenditure than the richer ones. In 2004, 11% of the non-poor population fell below the poverty line due to OOP payments

(Baeza & Packard 2006). This is not unexpected, given the fact that domestic general government health expenditure (as percentage of the Gross Domestic Product [GDP]) declined from meager 1.3% in 1990 to 0.8% in 2000 (World Bank 2005). In comparison, the Latin American average was 2.12% and 2.44% respectively (Martín-Mayoral & Sastre 2017).

2008 health reform in Ecuador and post-reform situation

The 2008 constitution abolished user fees for public health services on all levels of care (Asamblea Constituyente 2008). It guarantees all citizens “health promotion, prevention and comprehensive family and community care, based on primary healthcare; [...] and promotes the complementarity with ancient and alternative medicine” (Asamblea Constituyente 2008, p. 111). All health services are supposed to be equitable, safe and of high quality. The access to quality medicines is guaranteed and public resources are supposed to be distributed according to health needs (Asamblea Constituyente 2008).

In contrast to governmental inaction after the last reform ten years earlier, this time the State budget for public health was raised to two percent of the GDP and the budget of the MPH was almost doubled (De Paepe et al. 2012). Officials of the MPH and the Pan American Health Organization (PAHO) report a five times higher annual investment in health compared to the years prior to the reform (Espinosa et al. 2017). This was mainly used to raise salaries, increase drug supplies, build or repair hospitals and health centers and to substantially increase the health workforce (Espinosa et al. 2017; Paepe et al. 2012). From 2000 to 2014, while the population grew from 12.5 to 16 million, the number of physicians was tripled to 32,617 people. Two thirds worked in the public sector, about 11,000 in the private for-profit sector and around 1,000 in the non-profit sector. The number of all other health workers also increased, but to a lesser degree (Instituto Nacional de Estadística y Censos 2014).

As a result, according to MPH data, consultations in MPH facilities went up by around 50% between 2008 and 2012 (Guerra Villavicencio 2016). The system was not properly prepared for this increase and partly contracted private providers to meet the demand (De Paepe et al. 2012). Both, government officials and academics state that the implementation of the integral health care model based on health promotion, prevention and primary health care, executed through local health teams, was more complicated than anticipated (Espinosa et al. 2017; Pan American Health Organization 2017; Torres & López-Cevallos 2017). In this regard Torres and López-Cevallos (2017) criticize that the infant malnutrition rate remains high with over 25%. Several authors describe the post-reform system still as vertical, with a focus on infrastructure and specialized hospital

services instead of preventive and promotive health services. The quality of the public health system is described as low or unclear (De Paepe et al. 2012; Rasch & Bywater 2014; Torres & López-Cevallos 2017). The PAHO reports a geographically unequal distribution of specialist doctors, 29 per 10,000 in urban areas, 5.4 in rural areas (Pan American Health Organization 2017). Guerra Villavicencio found that poorer income quintiles financially benefitted from the reform, but that there were still substantial costs involved, mainly for the purchase of pharmaceuticals and private medical consultations. Participants of a focus group in an urban PHC center experienced for the most part good treatment, but criticized long waiting times, a lack of medicines and a time consuming health information system (Guerra Villavicencio, 2016). According to Rasch and Bywater (2014), the new system has not been examined at the community level.

Health system structure and financing

The main structure of the public health system remained basically unchanged compared to pre-reform times (De Paepe et al. 2012). Different actors operate under the stewardship of the MPH in partly overlapping and parallel systems. The public system is segmented and comprises the MPH and the IESS-SSC as the main providers of care, the health services of the armed forces, the police and some municipalities. The Society for the Fight Against Cancer, the Welfare Board of Guayaquil and the Red Cross of Ecuador are private organizations operating in the public system. Besides, the private for-profit and non-profit sector exist (Lucio, Villacrés & Henríquez 2011; Pan American Health Organization 2017). This implies a variety of health care options for patients, according to their place of residence, employment and financial resources, as outlined below.

The MPH comprises three levels of care, which have subdivisions. Part of the PHC level are health posts, health sub-centers, health centers and mobile units. Basic dental and gynecological services are located on this level. On the second level of care, the specialist clinics, basic and general hospitals are located. Specialist centers and hospitals comprise the third level (Aldulaimi & Mora 2017). All levels of care are accessible for the entire population, yet mainly aimed at the uninsured poor, among which we find the poor rural population. The few municipal health services are also aimed at the uninsured inhabitants. The IESS-SSC runs its own system of hospitals, health centers and health posts. Besides, it has contracted out large parts to private providers. The formally employed are entitled to become a member of the IESS (De Paepe et al. 2012). In 2014, the IESS-SSC had around 3.1 million members (Instituto Ecuatoriano de Seguridad Social 2018). Rural farmers and their families can affiliate themselves with the SSC through membership in a legally registered farmers' organization. Members of the police and the armed forces as well as their families can

subscribe to their respective system (Lucio, Villacrés & Henríquez 2011; Pan American Health Organization 2017).

Private health insurers and companies cover the richer three percent of the society (Pan American Health Organization 2017). Private or “voluntary” insurance contracts are offered to individuals, families or companies who are able and willing to pay. Fees are usually paid monthly and contracts renewed yearly (Giedion, Villar & Ávila 2010). The insurance function is primary, i.e. it is the main source of health coverage for this population (Gottret & Schieber 2006). The private for-profit sector furthermore comprises private doctor’s offices, hospitals, pharmacies and traditional healers (Pan American Health Organization 2017).

The non-profit sector includes NGOs and church based organizations, amongst some other actors (De Paepe et al. 2012; Flores & Castillo 2012). International NGOs are in need to sign an agreement with the State to be able to work legally in the country. The official number of NGOs is 210, according to a governmental website (Ministerio de Relaciones Exteriores y Movilidad Humana 2018). However, it is not clear how many of them work in the health sector. The same applies to national NGOs who work in the field of health. A search on a website for jobs in NGOs and other projects reveals that 21 health related NGOs are currently active in Ecuador, certainly only a fraction of the real number (Action Without Borders 2018). It is unclear if the health related national and international NGOs have some kind of cooperation. From the author’s own experience in the field and the few scientific articles available on NGO work in health in Ecuador, it appears that those initiatives only have limited interaction (Biermann et al. 2012; Gaus 2009; Rasch & Bywater 2014).

The total number of non-hospital health facilities in 2014 was 3,397, the total number of hospitals 742. Of all non-hospital facilities, the MPH ran 58.1%, the SSC 19.3%, followed by facilities affiliated with the IESS 6.7%, non-profit providers 3.5% and others. Regarding hospitals, 71.6% were run by for-profit providers, 17.1 by the MPH, 3.1% by non-profit providers, 3.0% by the IESS, followed by others (Instituto Nacional de Estadística y Censos 2014).

The initial plan after the launch of the 2008 constitution was to create a single tax-based health financing system (De Paepe et al. 2012). However, this has not been achieved yet. The public health sector is financed through the federal general budget, extra-budgetary funds, funds from international agreements and other funds. The PAHO describes the payment system as an efficient network via an internet linkage between the

budgetary structure and an institutional management model (Pan American Health Organization 2017). The IESS receives individual membership payments, contributions from employers and the State. The SSC receives subsidies from the IESS, contributions from other insurances, membership payments and State contributions. The health services of the police and the armed forces are financed via membership payments and contributions of the State (Lucio, Villacrés & Henríquez 2011). Wagstaff et al. (2015) found that health systems that are not integrated, such as the one in Ecuador are further away from universal health coverage, compared to fully integrated systems, such as for example the one in Brazil.

According to the National Health Accounts, the domestic general government health expenditure as percentage of the GDP had gone up from 0.8% in 2000 to 4% in 2015. The current health expenditure as percentage of the GDP (level of resources channelled to health) was 9% in 2015 as compared to 3% in 2000. In monetary terms this was Int.\$ 194 per capita in the year 2000 and Int.\$ 980 per capita in 2015 (2011 purchasing power parity value revision; in comparison, the same indicator in Sweden in 2015 was Int.\$ 5,299 per capita). OOP expenditure as percentage of current health expenditure had dropped from 64% in 2000 to 44% in 2015 (in comparison, 15% in Sweden)[World Health Organization 2018b].

Traditional medicine challenges in Ecuador

Several studies show that traditional medical believes, explanations of illness and practices exist in the various ethnic groups and geographical regions of Ecuador (Andrade, Lucero Mosquera & Armijos 2017; Busmann & Sharon 2006; Cavender & Albán 2009; Knipper 2001; Trostle et al. 2010). According to the country's present constitution, health care should be intercultural. Traditional medical practices are recognized and protected by the constitution (Asamblea Constituyente 2008), but in practice this is not always the case as research about traditional midwives from the central Ecuadorean highlands shows. This study found that traditional birth attendants were met with intolerance and not allowed to enter public health facilities (Gallegos, Waters & Sebert Kuhlmann 2017). This indicates a discrepancy between policy and practice.

Traditional practices are dynamic and change with the changing natural environment and society (Trostle et al. 2010). Traditional and allopathic ('Western') medicine are not exclusive choices for treatment, but rather different options which in many occasions get used complementary (Knipper 2001; Trostle et al. 2010). Treatments have to be paid OOP and can be expensive. The costs of 25 US\$ for a cleansing ceremony, excluding materials, have been reported (Cavender & Albán 2009). The different types of traditional practitioners include traditional midwives (parteras),

herbalists (hierbateros), healers (curanderos), bone healers (sobadores), visionaries (yachak) and market vendors selling medicinal herbs. Members of the general population also have knowledge about traditional medicine and some practice it (Andrade, Lucero Mosquera & Armijos 2017; Bussmann & Sharon 2006; Trostle et al. 2010). This is the case in rural North-Western Ecuador as well and population based studies need to be sensitive about practices of traditional medicine.

This far, I have outlined the background on rurality in LMICs, concepts of access to health care and the Ecuadorean context. I will now move on to explain the need for further studies concerning access to primary and emergency care for poor, rural populations and the aim of the present thesis.

RATIONALE

As outlined in the background, access to comprehensive, well functioning and high quality rural health services is of utmost importance for the health of poor populations in every LMIC, including Ecuador.

Governmental weakness or inaction to establish and maintain PHC services for the rural poor may prompt national and/or international NGOs to take action (Gellert 1996). Thus, the creation of rural health services, as well as continuous adjustments to improve access to care, gets into the hands of a private actor. As NGOs are mainly non-profit oriented, they usually rely on (foreign) donations and are thus upward accountable towards their donors (Brown & Moore 2001). To work non-profit for the poor may be regarded as a moral high ground (by a NGO itself, its donors, the public etc.), but does not release the organization from its downward accountability, the accountability towards their beneficiaries, the population it serves (Cavill & Sohail 2007).

The population's perception of the NGO and its services, whether reflecting the truth or not, are important, because they have implications for the acceptance of the organization and its work (Ahmed et al. 2006). When it comes to foreign NGOs, this is even more critical, due to intercultural differences, where attitudes and interventions may send out the notion of foreign (or Western) supremacy (Haddad 2009). Perceptions are difficult to measure (Sofaer & Firminger 2005). They are influenced by a person's education and culture and influence in turn the degree of health literacy, health seeking behavior and health status. However, the evidence on the extent of this is limited (Commission on Social Determinants of Health 2007).

If the poor do not have the ability to pay for health services, they face a barrier to access health care. As shown above, OOP payments at the point of service are the most regressive form of health financing (World Health Organization 2008). Even if all other dimensions of access are functioning, if services are not affordable, access as a whole is jeopardized (Kobusingye et al. 2005). Before national UHC is fully achieved for all citizens, alternative financing mechanisms may bridge the gap. However, before planning and implementing such measures, their feasibility should be assessed (Dong et al. 2004). This is important in order to avoid raising unrealistic expectations, risking losing the population's trust and waisting other valuable resources like working time and money. A part of this as-

assessment should be to check the population's understanding of such financing mechanisms and to examine if they are acceptable to them.

Reforms to achieve UHC are a central part to reach the SDG 3 (World Health Organization 2015). The Ecuadorean constitution from 1998 had already aimed at UHC, but due to a number of reasons policy implementation did not take place (Baeza & Packard 2006). This has certainly not passed the population unaware as health service coverage and quality has been deficient (Guerra Villavicencio 2016). In the light of this historical failure, new attempts toward UHC and its implementation have to be critically and independently examined (Torres & López-Cevallos 2017). As the World Health Organization and Gilson (2012) point out, this type of health policy research is important even in the periphery of the health system. It should involve patients, providers on the front line, the population and managers. In the words of the WHO:

Their actions and interactions represent the practices that are ultimately experienced not only as health policy but also as the health system [...], and through which health improvement and wider social value is achieved (World Health Organization 2012, p. 31).

In the case of post-reform Ecuador, the big increase in the utilization rate of MPH health services includes an increase in consultations for medical emergencies of an equal proportion (Guerra Villavicencio 2016). Nevertheless, this is national data and it remains unclear if the rural population is equally represented in those numbers. For example, López-Cevallos and Chi studied health care utilization in Ecuador using national data. They found that uninsured and rural inhabitants have significantly lower odds for using hospital services (López-Cevallos & Chi 2010). However, data on emergencies was not reported. Thus, the rural population's access to emergency care remained unexplored. Investigating their health care seeking behavior in emergencies can add valuable information concerning the question if the new health policy has affected access to the public health system in such situations (World Health Organization 2012).

AIM AND FRAMEWORK

Aim

General aim

The general aim of this thesis was to study factors and interventions determining and influencing a rural population's access to primary health care, including medical emergencies.

Specific aims

- To appraise the feasibility of community-based health insurance in the study region (paper I).
- To study the perceived effects of the 2008 UHC health reform on rural PHC services and financial access of the rural poor (paper II).
- To explore the target population's perception of a NGO and its role in delivering health services (paper III).
- To measure the scope and describe the nature of perceived emergencies in the study region, the related health care seeking behavior and health expenditure under the new UHC policy in Ecuador (paper IV).

Framework

Based on the above outlined access model, the four studies explored different aspects of access to health care as shown in figure 3. Study I was concerned with financial issues regarding access to rural PHC, affordability of services and the population's ATP. Willingness to join (WTJ) a theoretical CHI model for a set premium and factors influencing this willingness were studied. Furthermore, the study assessed the population's understanding of a presented CHI scheme and attitudes towards it. Study II examined the new UHC health policy on the local PHC level, its implementation and perceived effects concerning access to care, including affordability. Study III explored health services provided by a NGO and its partnership with the MPH. It focussed on the perception of those services, in order to understand and reduce possible barriers concerning access to care. The research focus of study IV was former patients with perceived emergencies and their 'access journey' under the new UHC policy. The nature of perceived emergencies, the related health care seeking behavior and outcomes of their treatment choices were studied, as well as the learning process concerning future events. In the following section, the applied methods are described in detail.

Figure 3. Research framework, based on the access model (p. 19)

METHODS

Study setting

Geography and population of the study region

The study region is a rural rainforest region in Ecuador's North-Western province Esmeraldas as shown in map 2. It is locally known as El Páramo (a word that is usually used for Andean highland vegetation) due to its hilly structure. The biggest part belongs to the canton Quinindé (also known as Rosa Zarate). It is not an official administrative structure and its margins are not clearly defined. However, due to local geographical reasons (accessibility from the outside, connection of villages) the term gets widely used by the local population. Elevation is around 300 to 700 meters above sea level. The rainy season lasts from December to May.

Map 2. Canton Quinindé, Esmeraldas (arrow: cantonal capital Rosa Zarate/Quinindé; dotted area: approximate location of El Páramo)

Source: www.maphill.com

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El Páramo consists of 30 villages which are connected by dirt roads and tracks (map 3). Traveling is usually done by foot or mule, some inhabitants possess motorbikes, very few possess cars. During the rainy season travel conditions are arduous as roads and tracks become extremely muddy. Most villages consist of scattered households that are surrounded by fields and forests. Houses are typically wooden, with roofs made out of natural material or tin. Most are built on stilts in order to provide protection against flooding, snakes and spiders.

About half of the settlements are illegal, as they are located in the Mache-Chindul nature reserve (Muñoz Marcillo, Andrade Mecía & González Osorio 2016), thus landownership for about half of the population is uncertain. Official governance and law enforcement is weak as the area has been neglected by the government for decades (Ordoñez Llanos 2005). However some villages have self organized development and/or primary school committees. Village centers usually consist of a primary school and one or more simple shops. Some of the more accessible communities have recently been connected to the national electrical grid.

Map 3. Schematic map of the study region (official maps do not exist)

The area's population is around 5,000 in estimated 1,074 households. Official census data exists only for some of the geographically more accessible communities, but no official census has ever covered the entire area. Most of the population settled in this area some 50 years ago after a drought in their area of origin. The majority identify themselves as Mestizos, a few as Afro-Ecuadoreans. Poverty is widespread and most depend on subsistence farming. Their primary source of income is from cocoa farming and/or livestock breeding.

Health services in El Páramo

Until 2001, the general population of El Páramo did not have any health care facility at their disposal. The closest facilities accessible for the general population were located in the cantonal capital Quinindé, which is located about 45 km South-East of the area's center. For the inhabitants living in the remote parts, this meant a two to eight hour journey by foot or mule to the area's central village La Y de la Laguna, followed by a one to two hour ride in an open pick-up truck or lorry-bus to Quinindé. For patients and caretakers, such strenuous and time consuming journeys mostly implied costly overnight stays in Quinindé and many abstained from seeking health care due to those geographical and financial access barriers. The spectrum of diseases ranged from malaria, dengue fever, cutaneous leishmaniasis, diarrhea, intestinal parasites, respiratory infections and sexual transmitted infections to genito-urinary problems, musculoskeletal disorders and accidents (Ordoñez Llanos 2005).

In the year 2001, a PHC center was constructed according to MPH standards in the area's central village La Y de la Laguna. This was done in a joint effort between the local population and international volunteers. A health committee, consisting of local volunteers was formed, registered with the Ministry of Social Affairs and became the official owner of the PHC center. The center was financed through donations and staffed with local employees (auxiliary nurse, laboratory technician, administrator, cleaner) and international medical volunteers. Those are recruited and send by the volunteer-run international non-governmental organization FHN (Foundation Human Nature n.d.). During the time of this research project, volunteer physicians and other overseas medical personnel were managed by FHN's national counterpart, FHN Ecuador (even if the structures have changed since then). The PHC center offers outpatient consultations for all ages, gynecological consultations, obstetric services and dentistry. It has a laboratory for basic tests, a pharmacy and a few beds for short term inpatients. Referrals get usually send to the basic hospital in Quinindé or more specialized hospitals further away.

Soon after the initiation of the PHC center, the local health committee and the NGO started to train volunteer community health workers from the surrounding villages who are involved in joint health outreach and education campaigns to the remotest communities. A year after the center started to operate, a public private partnership between the health committee, the MPH and the Ecuadorean NGO was established. Details about roles and responsibilities of this PPP are presented in paper III. The MPH began to send a first year physician, dentist and nurse on a yearly rotation program, whereby those young professionals get sent to understaffed centers or areas (Cavender & Albán 1998). However, cooperation with the district health authorities was difficult, due to very frequent changes of officials. Consultations, medicines and materials had to be paid for OOP, except for services under the free maternity and child care law (Chiriboga 2009) and the vertical malaria eradication program (Krisher et al. 2016). Those who could not pay received treatment as everyone else, but were asked to pay at a later point. In practice however, most were exempted from payments through NGO contributions. Since the 2008 health reform, OOP payments were suspended and more medicines were sent by the MPH. Since that time, the number of staff was also augmented by the MPH with a midwife and at times further nurses and physicians. This is partly related to readjustments of the PHC center's catchment area by the MPH. Over the years, the disease spectrum has slowly shifted and nowadays includes more non-communicable diseases like diabetes mellitus and hypertension (Foundation Human Nature 2017).

In two villages on the outskirts of the region, a MPH health post, staffed with an auxiliary nurse, and a SSC sub-center, with changing personnel, offer basic services. The latter can only be accessed by affiliated members (Lucio, Villacrés & Henríquez 2011). Traditional healers offer services inside and outside the region and many inhabitants themselves have knowledge of traditional medicine, which often gets used as a first line treatment (Ordoñez Llanos 2005). The different health care options that inhabitants of El Páramo have at their disposal are displayed in figure 4.

Study design

The present research project has been carried out using quantitative and qualitative methods, or fixed and flexible strategies according to Robson (Robson 2002, cited in World Health Organization 2012, p. 53). In study I and IV quantitative methods were applied, in study II and III qualitative methods were used. The design of each study was chosen in order to meet the study aim, with regard to the prerequisites of the study population.

Figure 4. Health care options in the study region and beyond

Both fixed and flexible strategies can produce valuable results when studying health systems and access to care (Green et al. 2010; World Health Organization 2012). The design of this research project has evolved during its course. This is due to qualitative findings from studying the perceived effects of the national health reform (paper II) which led to the development of study IV. The two quantitative studies were carried out using a cross-sectional design. Figure 5 shows the timeline of the project, as well as important local and national events.

Data collection

Overview

For study I and IV, pre-existing questionnaires were not available, thus questionnaires had to be developed. They were translated into Spanish by bilingual speakers, pre-tested in the study region and then adjusted ac-

Figure 5. Project timeline, including critical national and local events

cordingly. They are not included in this thesis because the final versions are in Spanish, but they can be obtained from the author upon request. For study II and III, question guides were developed, translated into Spanish and adjusted. Regarding study II, this was done by a native speaker with knowledge about the local situation. In case of study III, minor adjustments were made after two pilot interviews. Those were included in the study.

Focus group discussions (FGDs) were used in both qualitative studies, as issues such as health care are usually discussed collectively in the local society. This method has been described as appropriate to discuss multiple views on an issue (Patton 2002). FGDs are culturally appropriate in societies with strong oral traditions, such as in El Páramo (Vissandjée, Abdol & Dupéré 2002). In study II four FGDs were carried out with different stakeholder groups, health committee board members, village leaders, health staff and community health workers (CHWs), aiming at triangulation (Malterud 2001). Because of this, the issue of saturation did not apply (Krueger & Casey 2009). In study III six FGDs were carried out with CHWs and the general population. Details are shown in table 1. Through this approach, the perceptions of the population were collected. Additionally, in study III 14 semi-structured key-informant interviews were conducted, complementary to the FGDs, in order to collect detailed information from those closer involved with the NGO. Regarding saturation, FGDs and interviews were analyzed shortly after they took place and further data collection was planned until no new patterns emerged in the data (Holloway & Galvin 2017).

Study I

In the first study, information on willingness to join a presented CHI model for a set premium was collected. The model was based on a similar one used in a feasibility study for CHI in Burkina Faso (Dong et al. 2003).

Table 1. Overview of papers, data collection and study population

Paper	Data collection methods	Study population and sample size	Year
I: Feasibility of community-based health insurance in rural tropical Ecuador	Quantitative. Cross-sectional household survey. Interviews with household heads using a structured questionnaire.	General population (gen. pop.) on the household level. 210 households (30 clusters with 7 households per cluster)	2006
II: Achieving universal health coverage in marginalized populations: a qualitative study from rural Ecuador	Qualitative. 4 FGDs with: - Health staff (MPH and NGO) from the 2 MPH health facilities - Members of the local health committee board - Village leaders - CHWs	Health staff, health committee board members, village leaders, CHWs	2010
III: Collaboration between non-governmental organizations and public services in health - a qualitative case study from rural Ecuador	Qualitative. 6 FGDs: - CHWs (mixed female and male) - CHWs (male) - Gen. pop. adult females - Gen. pop. adult males - Gen. pop. adolescent females - Gen. pop. adolescent males 14 key-informant interviews with: - 6 local key persons - 6 staff members of the PHC center - 2 foreign volunteer health workers	General population, CHWs, national and foreign key-informants	2012
IV: Universal health coverage in rural Ecuador: a cross-sectional study of perceived emergencies	Quantitative. Cross-sectional household survey. Interviews with household heads using a structured questionnaire. Further interviews with former emergency patients or patient carers using a second structured questionnaire.	Gen. pop. on the household level. 210 households (30 clusters with 7 households per cluster)	2012

The enrollment unit was chosen to be the household, in order to protect vulnerable individuals such as women and the elderly. The hypothetical benefit package included coverage of PHC services, including consultations, medicines, materials, laboratory diagnostics and inpatient stay at the local PHC center. Furthermore, basic coverage of emergencies on the next level of care was included. Based on research carried out by Dong et al. (2003), the take-it-or-leave-it approach for a set premium was chosen, a straightforward method of willingness to pay assessment. The hypothetical premium per household and year was set at 30 US\$ in a discussion with the study region's CHWs. As research on CHI in Latin America was scarce, the definition of feasibility was based on studies from Africa and Asia (Criel & Kegels 1997; Desmet, Chowdhury & Islam 1999; Dong et al. 2004). Accordingly, feasibility of CHI was defined as more than 50% of household heads willing to join the presented CHI scheme. Additional collected data included background variables, variables related to the so-

cio-economic status, vertical and horizontal trust (Zhang et al. 2006) and the perceived quality of care of the local health service. To get an insight into household's possible ATP for CHI, information on the past illness episode and related health care expenditure was collected. Furthermore, the population's understanding of CHI was assessed.

Study II

For study II, the question guide covered knowledge about the 2008 health reform prior to its implementation, local changes as a result of the reform, it included a concrete patient case as an example regarding consequences for access to care before and after the reform and ended with advice to a health policy maker. Details can be found in paper II.

Study III

The question guide for the FGDs in study III included changes in local health care over time, the first impression of a health outreach campaign, explaining health outreach and the NGO to someone else, satisfaction with health outreach and the PHC center, suggested improvements and possible personal involvement. For the key-informant interviews, the question guide differed. It covered topics such as the development of the NGO, the population's perception of the roles of the NGO, the health outreach campaigns and the medical doctors (national and foreign), the population's satisfaction with the NGO, perception of community participation and suggested changes. Details are displayed in paper III.

Study IV

In study IV, information was collected with two questionnaires. The first one included background variables, household assets and expenditure, variables concerning the past illness episode and health expenditure. Moreover, the definition of 'perceived emergency' was presented:

A medical emergency exists, when a person has a health problem that you consider so urgent that you have to stop your current activity in order to seek help for this person (or yourself).

In case that a member of the interviewee's household had experienced at least one emergency event according to this definition during the past 12 months, the second questionnaire collected additional information. This included the number of emergency events, the symptoms and further case description of the past emergency, variables concerning health care seeking behavior and health expenditure.

Sample size

The study unit for the quantitative studies was the household. ‘Household’ was defined as those people who live under the same roof during most of the time of the year. The general formula for sample size calculations is as follows:

$$n = N * X / (X + N - 1)$$

where:

n = sample size

N = population size

$$X = \frac{Z_{1-\alpha/2}^2 p(1-p)}{MOE^2}$$

$Z_{1-\alpha/2}$ = critical value of the Normal distribution at $1-\alpha/2$ (e.g. for a 95% confidence level, α is 0.05 and $Z_{1-\alpha/2}$ is 1.96; for a 90% confidence level, α is 0.1 and $Z_{1-\alpha/2}$ is 1.645)

p = the sample proportion

MOE = margin of error

The sample size formula contains a finite population correction because the samples were rather big in comparison with the population size (Daniel 1995).

Sample size study I

For this study, the used sample size were 210 households. At the time of the study in 2006 the estimated number of households in the study region was $N = 829$, thus more than one quarter of all households were sampled. Prior to the study, no further sample size calculation was performed. The sample size is discussed further in the discussion section.

Sample size study IV

For study IV, two sample sizes were calculated, one for the primary outcome, the scope of perceived emergencies, and another for one of the secondary outcomes, the prevalence of catastrophic expenditures. In 2011, the average household size was 4.76 people (Foundation Human Nature 2012). The estimated number of households in 2012 was $N = 1,074$, as shown under the following section, resulting in $N = 5,112$ people. Concerning the scope of perceived emergencies, 10% were anticipated ($p = 0.1$). This derives from the following data and estimations. Hospitalizations in Ecuador in 2004 had been a maximum of 3%, with lower odds in rural areas (López-Cevallos & Chi 2010). Those hospitalizations were most likely not all due to emergencies, thus the annual hospitalization rate for emergencies was estimated at maximum 2.5%. Not all emergency patients are hospitalized, but data on hospitalization rates of self reported emergencies in Ecuador was not available. A study from a regional hospi-

tal in Chile reported a rate of 6.1% (Andrés Alvo & Sabastían Aguirre 2010), data from two studies in Mexico showed 11% and 35% respectively (Centeno Sánchez et al. 1998; Fajardo-Ortiz & Ramírez-Fernández 2000). For the El Páramo region with its difficult geographical access, a rather reluctant care seeking for urgent medical conditions was expected, leading to presentations of higher severity at health facilities. A 25% hospitalization rate was estimated. This yields an estimated annual risk of perceived emergencies of $2.5\% / 0.25 = 10\%$. With a 95% confidence level and a 5% margin of error, calculations resulted in 135 persons to be interviewed, which corresponds to 28 households. The response rate in study I had been 73%. Assuming a similar response rate, sample size calculations for the primary outcome resulted in 38 households to be interviewed.

Concerning the prevalence of catastrophic health expenditure for perceived emergencies, calculation were as follows. The study unit was the household, because all household members usually depend on one economy. The average household has about five members. As shown above, each member has a 10% annual risk to experience an emergency, or a 90% risk of *not* experiencing such an event. Thus, the probability of a household to have at least one event per year is $1 - (0.9^5) = 0.409$ (41%) equal to 440 households in the region. The next step was to estimate the prevalence of catastrophic health expenditure for perceived emergencies. The literature states up to 10% of CHE in general in some Latin American countries (Wagstaff 2008). Given the nature of an emergency and the assumed lack of financial protection for the population in the study region, the prevalence of CHE was estimated at 25%. This results in 110 households, equaling a sample proportion of 10% of all households in the region. Given a confidence level of 95%, these approximate calculations led to a sample size of 123 households, correction for a response rate of 73% gave 168.

Sampling for study II and III

For the qualitative studies, sampling was done purposively. For study II local stakeholder groups who were likely to have knowledge about the 2008 health reform were included. In study III the population who had contact with the PHC center and CHWs were included in the FGDs. The key-informant interviews were held with persons who had special knowledge about the NGO and its services. New FGDs and key-informant interviews were carried out until no new patterns emerged in the data, thus until saturation was reached (Holloway & Galvin 2017).

Selection of study participants

Quantitative studies

For the quantitative studies (papers I and IV), a two-stage cluster sampling technique with 30 clusters of seven households per cluster was applied (Bennett et al. 1991). This method was chosen because of the absence of exact population data and its cost-effectiveness, in order to get as close as possible to a random sample (Hoshaw-Woodard & World Health Organization 2001). How the cluster sampling was performed is explained in the next two paragraphs, with the sampling of study IV as an example.

The first of the two stages was based on the number of inhabitants in each community. Informal census data from the previous year existed for 16 of the 30 communities (Foundation Human Nature 2012). This was revised with key-informants with knowledge about local migration (community leaders and teachers). They provided updated estimates about the number of households in five of the 16 communities. The estimated number of households of the remaining 14 communities was also obtained from key-informants. All communities were listed and the numbers of all estimated households added, which in this case gave 1,074 households. To find the place of the first cluster, 1,074 was divided by 30, the number of planned clusters, yielding 36 (rounded). A random number between one and 36 was electronically generated, in this case 26. Beginning at the top of the list, the community in which the 26th household was located was the place of the first cluster. All other clusters were found by simply adding 36, until the end of the list was reached. Thus, the probability for a community of being included in the study was proportional to its size (Bennett et al. 1991), which the examples of Arenanga (small community, no cluster) and Herrera (big community, several clusters) in table 2 illustrate.

The second stage took place in the villages which had been sampled. The seven households in each cluster were found by choosing a central starting point in each community, usually the central place. In case of the community with more than one cluster, several geographically distinct starting points were chosen. This approach is suggested in the literature, in order to get as close as possible to a random sample. It reduces the under-representation of the outer parts of the community (Bennett et al. 1991). At each starting point, a random direction was chosen by spinning a bottle. The number of households between the central point and the edge of the community were listed and one household randomly selected as the first to be interviewed. The remaining six households in the cluster were found by asking at the first household which of the surrounding houses is the closest, seen from door to door. At this household the next

Table 2. First stage of the two-stage cluster sampling (study IV)

Community	Data source	Number of households	Cumulated households	Count ¹	Number of cluster
24 de Mayo-Cube	key-informant	32	32	26	1
Achicube	census 2011	40	72	62	2
Aniceto	key-informant	28	100	98	3
Arenanga	key-informant	19	119		
Colorado	key-informant	20	139	134	4
Descanso	census 2011	29	168		
Dógola	census 2011	15	183	170	5
El Caucho	key-informant	25	208	206	6
El Limón	census 2011	25	233		
27 de Junio	key-informant	32	265	242	7
Estero der Plátano	census 2011	30	295	278	8
Herrera	key-informant	250	545	314, 350, 386, 422, 458, 494, 530	9, 10, 11, 12, 13, 14, 15
La Laguna	key-informant	24	569	566	16
La Y de la Laguna	census 2011	40	609	602	17
La Yecita	key-informant	25	634		
Los Ángeles	census 2011	30	664	638	18
Los Charcos	key-informant	24	688	674	19
Nueva Esperanza	key-informant	49	737	710	20
Nuevos Horizontes	key-informant	30	767	746	21
Piedrita	key-informant	32	799	782	22
Paraizo	key-informant	12	811		
Río Mono	census 2011	9	820	818	23
Sabaleta en Medio	key-informant	36	856	854	24
Sabaletita	key-informant	36	892	890	25
Santa Isabel	key-informant	36	928	926	26
Tahuales	key-informant	36	964	962	27
Tiwintza	key-informant	35	999	998	28
Viche-Caña Braval	census 2011	45	1,044	1,034	29
Zancudo	key-informant	15	1,059		
Aguacatal	key-informant	15	1,074	1,070	30

¹ Random starting point: 26; adding 36 (1,074 households/30 clusters) repeatedly until the end of the list

interview took place. This was continued until seven households were found. In the interviewee was absent for two days, the household was excluded and not replaced. The interviewee was the household head. In study I this was defined as either the father or mother of the family (randomly assigned), in study IV the principal decision maker. The interview about the last emergency event was held with the former emergency patient if he or she at present was 15 years or older and remembered the event. If otherwise, the one who took care of the patient was interviewed. If this person was absent, the interview was held with the household head.

Qualitative studies

Concerning the qualitative studies (papers II and III), the participants of the FGDs and the key-informants were purposively sampled. For study II, the entire health staff of the PHC center and the MPH health post as well as all health committee board members were invited. Furthermore, village leaders and CHWs were invited after a random selection of females and males from those living in communities close to the PHC center and those living in remote communities. In study III, CHWs were invited to participate in the FGDs when they were visiting the PHC center. The same was done with the general population. The latter were grouped according to gender and age. This was done with the intention to give everyone the chance to speak freely and not feel intimidated by, for example, older participants or men. Furthermore, key-informants were purposively invited for the interviews. Fourteen key informants were interviewed in total. Those were six staff members of the PHC center (employees of the MPH as well as the NGO), two foreign volunteer health workers and six local key persons, including the NGO director, health committee leader, former PHC center administrator and leaders during the initiation of the PHC center and public private partnership.

Data management and accuracy

Quantitative data

For the household surveys, paper based questionnaires were used. Three CHWs were employed as interviewers for study I. For study IV, five CHWs were employed. They were thoroughly trained in a five day course, which included lectures, group discussions, role play and mock interviews. Interviewers were assigned to villages other than their own. Furthermore, they received constant feedback during the field research. The questionnaires were usually checked at the end of each working day. In the few cases when data was clearly erroneous or missing, the interviewer revisited the household as soon as possible. For study I data was entered into Epi Info (Centers for Disease Control and Prevention 2005) and double che-

cked. In the case of study IV, data was entered into a digital spreadsheet, double checked by two researchers and transferred into IBM SPSS version 23 (IBM Corp. 2015).

Qualitative data

In the qualitative studies, all FGDs and key-informant interviews were held in Spanish. All were digitally recorded and afterwards transcribed verbatim by research assistants who were native speakers. In order to increase credibility (Holloway & Galvin 2017), the consistency of the data was double checked by listening to all recordings and comparing them with the transcripts.

Data analysis

Quantitative analysis

In study I, the data was analyzed with Epi Info (Centers for Disease Control and Prevention 2005), in study IV with IBM SPSS version 23 (IBM Corp. 2015). Descriptive statistics with frequency distributions, mean and median were used. The Confidence Interval (CI) was set at 95%. For paper I, the χ^2 -Test was applied in case of sufficiently large numbers. Where observations were too few, Fisher's exact test was applied. The latter was used in study IV, both for 2x2 and 2x3 tables. Means of health expenditures for private and public health care contacts were compared using independent samples T-test. P values < 5% were considered significant.

Qualitative content analysis

The qualitative data in study II and III was analyzed using conventional qualitative content analysis as described by Hsieh and Shannon (2005). Categories were allowed to flow from the data without being preconceived. The unit of analysis was each transcribed FGD and key-informant interview. Qualitative content analysis can focus on the manifest or the latent content of the texts. Both are engaged with interpretation, but on different levels of abstraction and depth. Manifest content has been described as the more obvious and visible content, whereas latent content is concerned with the underlying meaning (Graneheim & Lundman 2004). Both qualitative studies focussed on more concrete interpretations and descriptions of the examined subject and thus manifest content analysis was applied (Graneheim, Lindgren & Lundman 2017).

After reading the texts several times, the analysis began by identifying meaning units, constellations of words or statements that relate to the same central meaning. Those were condensed and labelled with codes. In

an inductive way the codes were sorted into sub-categories and categories, which were grouped under emerging themes (Graneheim & Lundman 2004). Table 3 is an example from study II, in which all data has been translated. In the original analysis, meaning units and condensed meaning units were handled in Spanish. From codes onwards the data was analyzed in English. In study II, formal member validation was not performed, but preliminary results were presented to a bigger audience, in which present FGD participants had the chance to provide feedback. In study III member validation took place by presenting preliminary results to study participants (Holloway & Galvin 2017, Korstjens & Moser 2018).

Table 3. Example of the inductive, manifest qualitative content analysis

Meaning unit	Condensed meaning unit	Code	Sub-category	Category	Theme
But these changes should have been done democratically, right, with decisions of various persons, not only one person	Changes were not made democratically	Lack of democracy	Involvement in decision making	Decision making	Reform process
Now it doesn't depend on us, on our organization, the organization comes from the district, in the district they say it doesn't depend on us, it comes from above, thus don't feel guilty, we are not the one's who are directly responsible	The organization doesn't come from us, even the district says it comes from above	Lack of decision making power on lower levels			
The constitutional reform wasn't clear until it afterwards appeared, thus [...] we have a surprise	The reform wasn't clear until the end, it was a surprise	Lack of communication	Communication problems and interest	Obstacles	
We almost don't have knowledge about what are the citizen's rights as Ecuadoreans because we don't know much about the laws, thus we don't immerse ourselves deep in the laws and we always leave it to the others, thus, this is the disinformation	We don't have much knowledge about our rights, we don't know much about the laws	Lack of knowledge about rights			
Another problem was generated, which the government probably not foresaw, which is the demand of the patients	High demand of patients maybe not foreseen by government	High demand not anticipated	Poor planning and implementation		
The whole work is not done because there are some irresponsible people, there is dependency, there is negligence, now the president is not to blame, it's the fault of the functionaries who are in dependency	The whole work is not done because there are irresponsible people, there is negligence	Unfinished business due to irresponsibility			

Ethical considerations

This research project involved primarily the general population of the study region, including village leaders, CHWs, health committee board members and health staff. Other involved individuals were two foreign volunteers and the NGO director. No invasive techniques were used, all data was collected through interviews or FGDs. Patients were not directly involved, with an exception in study IV as explained below. However, those who in the past had been patients contributed with their experience, perceptions and knowledge in all four studies. Study IV in particular sought to interview former emergency patients and included even those who had ongoing emergencies.

Participation in all studies was voluntary. Written informed consent was obtained before all interviews and FGDs, understanding was checked for and clarifications made when needed. In case of illiteracy in study I, II and IV, the consent form was read to the interviewee in the presence of a witness and signed by fingerprint. In such cases in study III, verbal informed consent was obtained. The interviews and FGDs could be interrupted anytime without negative consequences for the respondent. All data was handled confidentially and stored in a safe place. In the quantitative studies all data was anonymized from the point of entry into the database. In the analysis of the qualitative studies, initials were used. In the presentation of the FGD results, all identifiers were removed, except for the category of respondents. The same was done with the key-informants.

For study I, ethical approval was obtained from the Ecuadorean Society for Bioethics (Oficio 052-SEB-2006). For the remaining studies, which took place after the 2008 health reform, this Society was no longer responsible. The new National Commission of Bioethics in Health was not functioning yet (UNESCO 2015), when the ethical approvals for those studies were sought (Pan American Health Organization 2011). After many attempts to identify a responsible official body, the Bioethics Committee of the Pontificia Universidad Católica del Ecuador assumed responsibility for this issue. Ethical approval was initially granted orally prior to the studies and was later received in writing (Oficio-CBE-001-2013). Furthermore, the Farmers' Health Committee for the El Páramo Region and the NGO Foundation Human Nature Ecuador granted written approval of the studies.

MAIN RESULTS

Paper I

The response rate was 72.9%. Demographic characteristics are shown in the paper and in paper IV.

Willingness to join community-based health insurance

The primary outcome, willingness to join the presented CHI scheme for 30 US\$ per household and year was 69.3% (95% CI 61.3%-76.5%). With affiliation, 92.2% stated they would use the PHC center more frequently.

Socio-economic status and trust indices

For the classification of the socio-economic status, a composite index was constructed (Howe et al. 2012). First, the social and the economic status were computed independently. In each, relative weights were assigned to the variables. For example, the construction material of the family's own house was assigned a weight of 5 if it was of the most expensive type (cement for walls/floor, zinc for the roof) and a weight of 1, if it was of the cheapest type (bamboo for walls/floor, leaves for the roof). The other materials were sorted between those extremes, according to their value. Another example is the existence of a TV (weight of 1 if existent, 0 if non-existent). Other typical assets (DVD, electricity source, existence of a vehicle, number of cattle and horses [both grouped]), productivity (hectares of cocoa, grouped) and labor were combined. The social status included variables about occupation of husband and wife, family integrity and the interviewee's years of schooling. Finally, both the social and the economic status were combined and ranked in quintiles. Vertical and horizontal trust indices were created in the same way. Vertical trust included trust in leaders and confidence in the PHC center. Horizontal trust combined membership in a community organization, trust in neighbors, willingness to lend money to neighbors and the number of people who would lend money to the interviewee (Zhang et al. 2006).

Determinants of willingness to join

Of the background variables, shorter education (≤ 6 years) was found to be positively associated with higher WTJ the CHI (72.7%, $p = 0.039$). None of the other background variables, SES, vertical trust, horizontal trust and the perceived quality of care at the PHC center showed a statistically significant association with willingness to join. A trend was found concerning a higher number of contacts with the local PHC center in the past six months and higher WTJ.

Health care seeking behavior and ability to pay

Of all interviewees, 57.5% reported at least one ordinary illness episode in their household in the past three months. The first actions that were taken are shown in figure 6. Expenditure was assessed in ranges, due to the relatively long recall period (0; 0.01-3; 3-5.99; 6-9.99; 10-14.99; 10-15; >15 US\$). Expenditure for health services, excluding non-medical costs (for transport, accommodation, food etc.) was found to be >15 US\$ in 36.4%, 6-15 US\$ in 22.7%, >0-5.99 US\$ in 20.4% and 0 US\$ in 17.1% of all cases, the remaining 3.4% did not remember (n = 88). The total expenditure for the illness episode, including non-medical costs, was calculated by adding the range averages. Results are shown in table 4.

Figure 6. Past ordinary illness, types of action taken (first action; n = 88)

Primary health care utilization and perceived quality

About 70% of all interviewees had utilized the local PHC center before, for services other than vaccinations. Concerning service quality they were given five options from 'very good' to 'very bad'. Their answers were 'very good' 21.5%, 'good' 54.2%, 'average' 22.4%, bad 1.9%, very bad 0%.

Understanding the community-based health insurance concept

Asked about their understanding of the CHI concept, 78.4% of all interviewees claimed to fully understand the concept. A control question was used, which revealed that actually 58.2% of all interviewees seemed to understand the concept, 8.5% did clearly not understand it. Concerning all others it remained unclear if they understood the CHI or not.

Table 4. Total average expenditure for past illness (n = 88)

Average amount (US\$)	0	>0-30	>30-60	>60-90	Total
# of households	13	48	25	2	88
Proportion	14.8%	54.5%	28.4	2.3%	100%

Paper II

In total, 28 persons participated in the four FGDs, with a minimum of five (health committee board) and a maximum of nine (CHWs). Women and men were represented in all groups. Villages leaders and CHWs from both nearby and distant communities took part in the respective FGDs. The focus group discussions lasted between 101 and 140 minutes. Table 5 shows themes, categories and sub-categories that emerged in the analysis.

Pre-reform situation

The situation of the health system before the 2008 reform was described as difficult in terms of access and quality. The absence of financial protection was criticized and human resources in the public system were described as scarce. The free maternity and child care program was lamented to be understocked. No one favored the old system. In the local PHC center, the presence of volunteer doctors was valued. Due to the presence of the NGO, the local services were described as follows.

[...] telling him that he had to pay afterwards, taking the risk that he wouldn't, but alright, but because of humanism he was given the medical attention, only the medicines maybe [...] he would have had to buy, but the medical attention from the personnel always was given. (FGD health staff)

Table 5. Themes, categories and sub-categories (paper II)

Themes	Categories	Sub-categories
Pre-reform situation	-	Access and quality
Reform process	Decision making	Involvement in decision making
	Obstacles	Communication problems and interest
		Poor planning and implementation
Effects of the reform	Supply and demand	Patient load
		Mismatch of supply and demand
		Staff related factors
		Access to drugs and materials
	System factors	Medical attendance
		Documentation
		Patient satisfaction
	Satisfaction	Staff satisfaction
		Free or charged services
	Financial effects	Socio-economic effects

Reform process

Poor reform implementation and a top-down approach were perceived by local health staff, leading to misunderstandings and conflicts. Contrasting views about information and communication from the government were expressed.

Thanks to god, this government is distributing more knowledge, passed on in the public media, in any case we know some things. (FGD village leaders)

[...] in health we didn't know which were the changes that would come [...] worse [for] the people around that are on the outside, that don't have anything to do with health [services]. (FGD health staff)

However, also a lack of interest in the reform by the population was felt. Parts of the population were reported to lack knowledge about the new system. In consequence, they were said to abstain from seeking free governmental health care. Village leaders believed that irresponsible officials hindered the full implementation of the health reform.

Effects of the reform

As achievements of the new health policy FGD participants described and valued free attendance and drugs, increased availability of health personnel and medicines, more preventive services, supervision of health personnel and the possibility of home visits to patients. Concerning financial accessibility, village leaders stated in their FGD that

[...] sometimes one has little financial resources and sometimes does not have [anything] and has 4-5 children, now he/she is not going to make it, when all are sick, and when things have to be purchased he/she won't have enough to purchase for all of them and now we have the opportunity that things are being given for free [...] and will not continue to be sick [...].

Simultaneously, health committee board members discussed that the availability of free medicines or materials incentivized people to approach health services, even without a clear need. Overcrowding was perceived to be a serious problem, especially for those living in remote villages. This led to patients not being attended to and could have financial consequences.

The people who come from afar go looking for a private doctor, when they didn't receive medical assistance here they had to look for a private doctor [...] when it's an emergency [...] quick to the private doctor. (FGD CHWs)

In addition, in all FGDs the new health information system was criticized as being very time consuming, shifting working time from patient work to paper work, leading to dissatisfaction of patients and staff.

Paper III

In total, 35 persons took part in the six FGDs with a minimum of five and a maximum of seven in each. In all focus groups people from communities close and distant to the central village were present. The FGDs lasted between 30 and 60 minutes. Fourteen key-informant interviews were carried out, lasting on average 30 minutes. Further details are presented in table 1 (p. 43). In the analysis three themes emerged, which are presented below with their corresponding categories.

The public private partnership

Services

The existence of the PHC center and its services was appreciated. CHWs expressed their hope that the NGO would maintain its role in the future concerning financial and material support. In a FGD with members of the general population, a partial lack of drugs was complained about, something that others had not experienced. The lack of a permanent doctor in the PHC center was lamented.

A: [It would be good] if there was a doctor permanently. Sometimes one, or some person from the community, could suffer from something serious, and being able to go the health center and be sure that the doctor will be there [...].

B (nods): The most desirable would be to have a permanent doctor because sometimes I feel fine and healthy, and after a little while this can change [...]. Once, a woman, after some four, five years of good health, changed, and she almost died. And like around 10 pm, there was no doctor here [at the health center] to attend [her]. (FGD CHWs male)

Strengths and weaknesses

On the one hand key-informants valued that a PPP contract and a long term collaboration existed, on the other hand distrust, distinct interests and conflicts between the different parties were perceived as being problematic. Key-informants described that the majority of the population did not understand the particular roles in the PPP.

The non-governmental organization and its services

Volunteer doctors

The presence of foreign volunteer doctors was mainly perceived positively. They were overall described as caring, professional and motivated and increasing the capacity of patient care in the PHC center. Female patients preferred to meet the female volunteer doctor, when present (Ecuadorian

doctors in the PHC center were mostly male). Language barriers and a lack of knowledge about local diseases and the health system were perceived as downsides. One key-informant described foreign volunteers taking advantage of the local population instead of helping them.

Health outreach campaigns

Perception of outreach campaigns was generally positive, they were described as increasing access to health care for those living in remote parts. A partial lack of drugs was complained about.

It is very important because [...] machismo still exists. So, the wives and children don't leave [the village] because it's like this. So, it's good that the brigades [outreach campaigns] come to help them. (Key-informant interview)

Community participation

Development

During the launch of the PHC center community participation was perceived as energetic. Later, a change into passivity and dependence on the NGO was described. For sustainability, active community involvement was believed to be crucial.

We have to help the health center so that it moves forward. [...] It's for the good of all, for our grandchildren. (FGD CHWs mixed female and male)

Community health workers

In general, the population appreciated their CHWs and valued their services.

Yes, there is even a person that takes care of the community, the community health worker knows how to capacitate the family or the community [...]. (FGD general population adult females)

An occasional lack of appreciation for CHWs in their communities as well as communication problems between the communities and their CHW were reported. The need for stronger leadership by CHWs was expressed. Incentives for CHWs were proposed. Some believed that CHWs received a salary.

Participation on the individual level

On the individual level, passivity and individualism was perceived as obstacles to more participation in the health projects. A key-informant expressed that participation is an important element to grow as a person, but also as a community.

Paper IV

The response rate of this study was 85.2%. 179 respondents were interviewed with the first questionnaire, which included background data and data concerning the past ordinary illness. Complete information about travel times to the closest MPH health center and hospital could be collected from 168 interviewees. Those are displayed in table 6. Forty percent of all households reported an illness episode within the past seven weeks. Types of actions taken are shown in figure 7.

Table 6. Travel times to the closest MPH health facilities (n = 168)

	MPH health facility		MPH hospital	
	dry season	rainy season	dry season	rainy season
Mean all households	1 hr. 32 min.	2 hrs. 49 min.	2 hrs. 37 min.	4 hrs. 5 min.
Median	1 hr.	2 hrs.	2 hrs.	3 hrs.
Min. - max.	3 min. - 8 hrs.	5 min. - 10 hrs.	0.5 hr. - 12 hrs.	0.5 hr. - 12 hrs.

Perceived emergencies

The definition of perceived emergency was read to the interviewee:

A medical emergency exists, when a person has a health problem that you consider so urgent that you have to stop your current activity in order to seek help for this person (or yourself).

In 55 households at least one such event in the past year was identified. In total, 74 events were reported (41.3%, 95% CI 34.0-49.0%). Those households were interviewed further with the second questionnaire.

Figure 7. Past ordinary illness, types of action taken (first action; n = 72)

Case descriptions

One of the 55 households was excluded because the adult who suffered the emergency died shortly after sudden onset of chest pain, before help could be sought. The past emergency event in the remaining 54 households was analyzed further, starting with the reported symptoms. Those were sorted into chief complaints, adapted to the rural Ecuadorean context (Johnson, Gaus & Herrera 2016). The main chief complaint was fever, followed by traumatic injuries, abdominal pain, obstetrical complaints and chest pain. Other complaints were rarer and varied widely. Twenty percent perceived their emergency to be 'life threatening', 56% as 'very serious' and 22% as 'not very serious', one case was missing. Hospital admissions occurred in 29.6% of all cases.

Health care seeking behavior in perceived emergencies

The first contacted health care provider is displayed in figure 8. In 57.4% of all cases private for-profit providers were contacted, including traditional healers (95% CI 44.0-71.0%). The mean number of contacted providers to treat a case was 1.5 (95% CI 1.3-1.7). Of all cases, 33.3% were treated within the public system, all others contacted at least one private for-profit provider. Of those who had an SSC insurance 41.6% sought care at an IESS-SSC facility, all others contacted a private for-profit provider. Those who initially chose a private provider explained their choice. The most frequent explanation was the difficulty to get seen by a public provider (including long waiting times), followed by belief/trust in traditional medicine, quick attention and trust in the private provider.

Figure 8. First contacted health care provider (n = 54)

Health expenditure

Mean health expenditure (including non-medical costs) for the past ordinary illnesses was 135.8 US\$ (median 13 US\$, ranging from 0-7,000 US\$). In comparison, mean health expenditure for the perceived emergencies was 305.3 US\$ (median 88 US\$, ranging from 0-6,000 US\$).

Catastrophic health expenditure could be analyzed for 41 households, the remaining 13 chose to not give a full report of household expenditure data during the past month. The mean was found to be 285.5 US\$ (95% CI 204-366 US\$; median 213.5 US\$). At the 40% ability to pay cut-off level, 24.4% of households were found to incur catastrophic health expenditure. In all households, except one, which suffered financial catastrophe, the patient's first contact was with a private for-profit provider.

How did households cover the costs for these emergencies? Five could pay them from their current income, 14 used savings, 17 borrowed money from relatives or friends, three sold animals or crops, one household took a bank credit and one reduced spending on food; 10 households had to use multiple of those sources in order to pay their bills; one did not incur costs, the other two did not provide this information (n = 54).

DISCUSSION

General overview

The overall aim of this research project has been to study factors and interventions determining and influencing a rural population's access to primary health care, including medical emergencies. As shown earlier in this thesis, access to health care is a complex concept and choices had to be made about which features to focus on. This overview goes back to the research framework in figure 3 (p. 36). The design of this explorative project has evolved during its course, which was influenced to a great extent by the 2008 health reform, but also by findings from the first of the qualitative studies.

At the outset of this thesis stood the regressive health financing system in MPH services in the study region and the rest of the country, namely OOP payments at the point of service. In 2006, the NGO had plans to remove this access barrier in the region by implementing an alternative financing instrument. Thus, on the supply side the dimension of affordability and on the demand side ATP were to be influenced. In study I, CHI was found to be feasible, with certain drawbacks and remaining questions as discussed below. Consequently, the NGO's plan was to move further towards CHI implementation and to follow its development scientifically.

However, national events in 2008 changed those plans, as a newly elected government brought a major reform initiative under way: universal health coverage, abolishment of user fees and the guarantee of equitable and quality health services for everyone, based on PHC. This was good news. Nevertheless, with the history of a mainly unimplemented health reform in 1998 (Baeza & Packard 2006), the implementation and effects of this actual reform had to be critically examined, which was done in study II. Well known implementation errors were found, but the effects of the reform were generally perceived as positive, improving several dimensions of access to rural PHC on both the demand and the supply side. Nevertheless, study participants reported remaining problems of access to the public system, amongst them difficulties related to emergencies.

This triggered the development of study IV, to examine medical emergencies in the region, the related health care seeking behavior and expenditure. Regarding the access concept, the patient's 'journey of access' from need to outcome was in focus (figure 2, p. 19). Perceived emergencies were identified to be a frequent problem, occurring to at least 90/1,000

inhabitants in the past 12 months. In about half of all cases help was sought from private for-profit providers, despite the existence of the public UHC system. Financial hardship for many households was found.

Ultimately, to get a clearer picture of the supply side of health services in the region, the NGO as a stakeholder working for the population's access to care remained to be studied (paper III). In general, service provision in the region was perceived positively. Yet, those who were not closely involved during the initiation of the PHC center or working as CHWs had an unclear picture of the NGO and its role, especially in the PPP. For the population it mattered most that PHC services were functioning, not what kind of responsibilities the different partners had. Communication and community participation were two critical issues that were identified.

Discussion of main results

Pre 2008 health reform

Access barriers

Prior to the reform financial access barriers to health services were high for the rural poor. Qualitative findings from study II document dire situations, where receiving care could depend on mere luck or charity. It can be argued that even higher barriers had existed prior to the establishment of the PHC center, the creation of the CHW network and outreach campaigns by the NGO. However valued these achievements were by the population (study III), barriers to access remained. This shows that single elements in the complex and interwoven notion of access can impede or at least seriously challenge the poor's access to effective health services. Informal exemptions were offered to those who could not pay. A further, albeit indirect indicator of this situation was the result from study I where 70% were willing to join a proposed CHI scheme, designed to improve affordability of quality PHC services.

Feasibility of CHI

Based on the study's definition that WTJ of at least 50% would prove CHI to be feasible, the proposed scheme appeared to be a viable option to increase financial access to PHC and emergency services. However, WTJ is only a proxy for future enrollment, which may as well have lower rates in reality as several reviews across the globe have found (Adebayo et al. 2015; Ekman 2004; Fadlallah 2018). As study I did not exhaustively assess all prerequisites for a future scheme, its results should be seen as a first step. In addition to the individual's understanding of the insurance

concept, positive attitude towards it, a generally good perception of local PHC services and a certain willingness and ability to pay for it, CHI success and sustainability also depend on other factors. These factors are the managerial capacity on the community level, community involvement, promotion of the CHI scheme, exact payment arrangements, government support and more (Fadlallah 2018). They would need further attention if CHI were to be implemented.

Another issue is the economical base for CHI. It must be argued that a premium of 30 US\$ per year and household for the proposed benefit package is most likely too low in order for a CHI scheme to be financially sustainable. The proposed premium of 30 US\$ was set together with the region's CHWs, who stated that it would be affordable to most households. Affordability is an important prerequisite for CHI. Willingness to pay higher premiums for the majority was doubtful, at least when discussed with CHWs prior to field research. It can be argued that health expenditure for the past illness episode in around half of all cases was already in the range of 50% of the proposed premium. Thus, further illness episodes in the households during the same year would have caused health expenditure to increase to amounts that could have been used to pay for CHI. However, study I did not perform an assessment of households' ATP. Findings from study IV suggest that there is ATP for higher premiums. However, willingness to pay for CHI in post-reform times would need a careful assessment.

Sound data on health care costs and expenditures, service utilization and morbidity can be helpful when planning for CHI. Nevertheless, setting a premium based on such data is no guarantee for success as Ron (1999) found in Guatemala. Evidence from the Philippines shows that even ad hoc implementation of CHI can work, with the right political backup and careful adjustments along the way. In this example the CHI aimed at 3,000 families, supported by a NGO. Initial financial losses were covered by donors (Ron 1999). In this respect, the study region had similar prerequisites. The necessity for a financial safety net, for instance through a NGO is further illustrated by the fact that the poorest usually need special financial protection through e.g. fee exemptions or subsidies in order to prevent exclusion from CHI (Fadlallah 2018). However, a big drawback for many CHIs are often the meager risk pools (Adebayo et al. 2015; Ekman 2004). In El Páramo with around 1,000 households this would certainly be the case. In order to decrease NGO dependence, CHI schemes can get re-insurance, merge with other schemes, aim at bigger populations from the start or try to get government support (Carrin 2003).

Most of the examined variables in study I did not show a significant association with WTJ. This may be due to small sub-groups. However, one striking finding was that shorter formal education was associated with a significantly higher WTJ. This is in contrast to other studies (Adebayo et al. 2015; Dong et al. 2003). A possible explanation might be that higher education increases awareness and efforts of prevention and thus decreases the need for a benefit package which is heavily focussed on PHC.

Experience from other CHI schemes show that health care utilization increases after implementation (Ekman 2004). Study I found such indications as well as 92% of interviewees stated that they would visit the local PHC center more often if they were affiliated. On the one hand, this is a desired effect, as previously unmet need would finally be met (Hsiao 2001). On the other hand, when the behavior change of the insured surpasses their actual need, overconsumption of services takes place, so called 'ex post moral hazard' (Sapelli & Vial 2003). This carries several risks, such as queues, over prescription of drugs, depletion of the financial base of the insurance etc. It can be partly controlled by carefully set co-payments at the point of service (Islam, Igarashi & Kawabuchi 2012). Moral hazard also exists as an 'ex ante' problem, meaning that the insured take higher health risks, which as a consequence can also lead to higher service utilization (Yilma, van Kempen & de Hoop 2012). Another risk for CHI was found in study I. Those who had a higher number of PHC center contacts in the past six months showed a higher tendency to join the proposed scheme. This is known as adverse selection, meaning that subscriptions are skewed towards relatively unhealthy households, which can lead to insufficient risk pooling (Zhang & Want 2008).

Implementation of the 2008 health reform

Regarding the implementation of the reform, study II found indications that the reform process had received less attention than desirable. In times of profound political changes, the quick achievement of promised results seemed to have been more important. Locally, the reform was perceived to be pushed through in a top-down manner. This has also been reported from reforms elsewhere (Ridde & Morestin 2011). In this regard, the World Health Report 2008 highlights the importance of understanding health workers' resistance to change (World Health Organization 2008). The inclusion of all stakeholders in reform initiatives is vital, also to prevent a demotivated health workforce (Ridde & Morestin 2011). Evidence concerning the reform implementation from other parts of Ecuador is scarce. Guerrero Gavilanes (2009) points out that prolonged conflicts occurred on the ministerial level prior to the reform and states that Ecuador's implementation capacity had been rather weak during those years.

Communication was also found to be deficient as qualitative results show. Parts of the rural population were reported to not have received sufficient information about the new UHC system (study II). This is not unprecedented in Ecuador as Chiriboga (2009) points out that only 30% of the population were aware of the free maternity and child care law after its implementation. Regarding the access model (figure 2, p. 19), approachability thus was insufficient, resulting in hindered access. This barrier was also reported by James and colleagues (2006) in a review of studies on user fee removal in Africa and Asia.

Post 2008 health reform

Health care seeking and health care utilization

That increased affordability would likely lead to higher service utilization has been discussed above. How utilization changed in reality after removing OOP payments was illustrated by findings from study II. Utilization of services was reported to rise to a great extent, meeting previously unmet need as FGD participants described in various examples. This is supported by national data (Guerra Villavicencio 2016). It was also stated that healthy people approached services because they might get something for free (study II). Thus, the crowding of services, which resulted in long waiting times (study II and IV) may partly be attributed to ex post moral hazard.

Medical attendance in MPH health centers was described to be provided on a ‘first come, first serve’ basis. High demand led to competition between patients of whom not all could receive care. Thus, accommodation was insufficient. Those who did not get an appointment and had no other options, due to the lack of SSC insurance or money to seek private care either did not meet a provider at all or were forced to come back another day (study II). How difficult this might be is illustrated by travel times of up to ten hours (study IV). To protect this group, mechanisms need to be put in place to increase their chance of receiving necessary care at the first point of contact (Ridde & Diarra 2009). The presence of volunteer doctors has likely mitigated an even bigger deficiency of appointments (study III), which can be assumed in regions where NGOs are not active.

Concerning health care seeking behavior during the past ordinary illness, data from study I and IV show that the majority approached public health services or chose home treatment as opposed to utilization of private services. This pattern has not changed between pre-reform (study I, 2006) and post-reform times (study IV, 2012). What is striking is that private for-profit health care was utilized to a significantly greater extent when

people perceived an emergency. As results show, those patients or decision makers who chose a private provider were unwilling to accept long waiting times in the public system, again a question of accommodation. Others mentioned trust in the chosen provider as their reason. In these vulnerable moments, unknowing if the health problem was a threat to life or not, they opted for providers that were more easily accessible, with shorter waiting times, known to them and thus accepted higher health expenditure. Another interesting finding in this regard is that only around 40% of those with an IESS-SSC insurance went to such a facility. All others approached private providers. MPH facilities, which they could have been utilizing as well were no alternative to anyone with an IESS-SSC insurance. This illustrates a statement in a recent Lancet paper, that Latin American countries where social insurance and other public health services are still segregated, the extension of the latter has been done to cover the poor (Cotlear et al. 2015). Thus, did IESS-SSC subscribers not want to utilize MPH services meant for the poor, especially in a vulnerable situation? With the existing data, one can only speculate.

The fraction of emergency patients or decision makers that chose a traditional healer believed in this type of medicine and/or trusted the provider. Such choices need to be respected by practitioners of allopathic medicine, as the country's constitution clearly protects it (Asamblea Constituyente 2008). However, besides mere acceptance (Trostle et al. 2010) active co-operation between traditional and modern medical providers is desirable and has been shown to work (Calvet-Mir, Reyes-García & Tanner 2008). Regarding emergencies, such co-operation could for example result in mutual decisions concerning which conditions are safe to treat with traditional medicine and which should be seen by an allopath.

The NGO's changing role

The NGO together with the local population had more than a decade prior to study III set out in an energetic way to create local health services. The visible results of these common efforts were a functioning PHC center, the presence of volunteer doctors and outreach campaigns. This easily identifiable availability of health services was appreciated by the population, likely increasing the NGOs acceptance (Ahmed et al. 2006; Haddad 2009). Other measures, such as the existence of materials or money for certain activities were much more difficult to attribute to the responsibility of a certain stakeholder. As long as services were functioning smoothly, responsibilities of the different partners in the PPP were not of high importance to the public, why would they? When problems arose, it became clear that the PPP was not perceived as a co-operation between different stakeholders, but that "the service" was seen as one entity. The access dimension of approachability had clear weaknesses. The inadequate co-ope-

ration within the PPP and communication of its roles and responsibilities affected downward accountability (Cavill & Sohail 2007; Whyte & Olivier 2016). How much the other partners expected and relied upon the NGO to step in and ‘fill the gaps’ is unclear, but as ‘filling gaps’ was the outset of the organization it may as well have had this role all the time.

How and why did things change? At the outset of its work, the NGO had a clear role to create and provide services. Throughout the years, this role has shifted more towards capacity building. The population’s perception appears to not have been shifted accordingly (Brown & Moore 2001), thus their perception of the NGO’s role became much more blurred. Since the involvement of the MPH, the NGO could theoretically have been pulling itself out of the PHC center, focusing on and strengthening its other activities. At the same time members of the organization could observe how fragile and sometimes random the population’s access to care was. Consequently, the NGO continued its activities in the PHC center, providing services that the MPH did not provide fully. By ‘filling the gaps’ through the provision of materials, financing certain activities and posting of volunteer doctors whenever possible, the NGO tried to maintain quality and continuity of care (Stefanini 1995). What suffered was the clear communication of these efforts to the target population (Gilson et al. 1994). The NGO did not prioritize this task and none of the other partners in the PPP had strong incentives to provide such information, as services were running relatively smoothly. In conclusion, if a PPP of the kind examined in this thesis is to function properly, all partners have to fulfill their responsibilities and maintain clear and continuous communication about them with the target population.

A big challenge in increasing commitment and resources for PHC is implementation with community participation (Walley et al. 2008). This was confirmed in study III. An exception was the continuous efforts of the CHWs. However, their role was partly described as weak and incentives have been proposed. In other contexts, incentives or payments have been shown to be beneficial and they should be considered in rural Ecuador as well (Alfaro-Trujillo, Valles-Medina & Vargas-Ojeda 2012; Schneider, Hlophe & van Rensburg 2008). The challenge of increasing and sustaining community participation could become the new ‘raison d’être’ for the organization in the region. Its initial purpose of service creation, or the substitution of State functions (Stefanini 1995), has basically been fulfilled. To create a long term positive impact, the NGO could direct its focus on the development of a sustainable system of community participation in rural PHC, in the El Páramo region and beyond. This should include outreach campaigns as they have been found to increase access to care for vulnerable groups. Its relatively isolated work so far could be carefully re-

placed by co-operating with other NGOs - local, national and international and the cantonal health authorities, keeping constraints of sustainability and donor dependence in mind (Obiyan 2005).

Satisfaction and trust

Trust and satisfaction are important prerequisites for access to health care, as displayed in figure 2 (p. 19). Findings from the qualitative studies show that patients were mainly satisfied with the post-reform system concerning most access dimensions. Trust in the public health system returned. This has also been found after other fee abolition reforms (Ridde & Morestin, 2011). Dissatisfaction arose when drugs were not available, when the new health information system took a lot of time away from the medical attendance and when people could not get an appointment. Concerning the latter, inhabitants from the remotest villages were reported to be most affected.

Trust in the chosen private provider played an important role concerning health care seeking in perceived emergencies, as discussed in the next section. The finding that membership in a community organization was significantly associated with seeking public care, likely indicates trust in public organizations. Regarding study I, it was surprising to find that the trust indices did not show an association with willingness to join CHI as could have been expected (Zhang et al. 2006). This cannot be explained with the existing data, but may be due to small sub-groups.

Comparing staff satisfaction after health reforms internationally, a qualitative multi-country study reports increased workload, low salaries and low job satisfaction (Guevara & Mendias 2002). Findings from study II are in line with this. However, according to Espinosa and colleagues (2017) salaries and understaffing have subsequently been tackled. The lack of material in the system has persisted as results from study III, paper IV and personal communication with the NGOs project manager document. Nevertheless, PHC center staff were in favor of the health reform's general achievements. According to the WHO, job dissatisfaction, low wages and remoteness of a workplace can lead to staff absenteeism. Such absenteeism had been reported to be high in pre-reform Ecuador (World Health Organization 2006). At the studied PHC center unlawful absenteeism was not reported. The presence of the NGO and the public private partnership might have had a positive influence on staff presence.

Health expenditure

Regarding universal health coverage (figure 1, p. 13), the reform appears to have extended UHC's three dimensions in the study region. However,

as this research project did not include a quantitative assessment, this has to be seen with caution. Qualitative data suggests that the previously non-covered population has been covered, cost sharing has been reduced, fees removed and further services included. Doubt about a fully functioning and accessible UHC system for the rural poor arises when analyzing their OOP expenditure related to perceived emergencies and the high prevalence of catastrophic health expenditure. Also the partly very high expenditures related to the past ordinary illness are worrying. However, the number of examined cases was small, indicating the need for larger studies. While the health system is still being improved (Espinosa et al. 2017), it should be monitored that OOP health expenditure is decreasing.

In emergencies, catastrophic health expenditure was found to be related to seeking private for-profit care. It could be argued that decision makers had a free choice to opt for a public provider, but a relative lack of trust and difficulties to (quickly) get seen by a public provider led them to seeking private care. Even if the first contacted provider was public, subsequent contacts could involve a private provider, for example a pharmacy, increasing expenditure. If the government wants to protect its rural citizens from the costs of acute illness, barriers to accessing public health services should be removed and service quality further improved. Availability of medical personnel, early triage at public PHC and hospital facilities for patients with perceived emergencies as well as a full stock of drugs and materials at all times can increase trust in the public system (Shayo et al. 2016).

In the meantime, could community financing mechanisms provide protection against high health expenditure? Community loan funds for transportation have been shown to be useful in emergencies (Kobusingye et al. 2005). As non-medical expenditure was found to be high in study IV, this could be a feasible option. Even CHI could be considered. But as conditions have changed after the 2008 reform, a careful examination of its prerequisites on the political level would need to be undertaken, which has also been proposed in other LMICs working towards UHC (Fadlallah et al. 2018). The Ecuadorean health financing system is far from integrated, with pre-paid mechanisms existing in a mix as shown above (background on Ecuador). CHI could function as yet another component in order to decrease the rural poor's OOP expenditure at the point of service until financial protection is fully functioning for all (Abihiro & De Allegri 2015). In the current situation, the rural population would need to decide if CHI could be an option for them and if so, what kind of services (PHC, emergencies, secondary care etc.) should be included. Thus, CHI would not necessarily have to function exclusively, but could be supportive to the existing system (Bennett, Creese & Monasch 1998).

Methodological considerations

Study design

Two studies used a flexible research strategy (qualitative) and two applied a fixed strategy (quantitative). Depending on the research questions, a combination of both strategies can be valuable (Russel 2005; World Health Organization 2012). The typical questions in quantitative inquiry are ‘how often’ and ‘how much’, whereas qualitative research aims to increase the understanding about social phenomena as perceived by individuals or groups (Holloway & Galvin 2017), or as Clancy (2002) puts it ‘what is going on?’ Several reasons for the combination of methods existed. At the start of this research project stood the main objective to measure household head’s willingness to join CHI. To tackle this objective, a quantitative cross-sectional approach came natural. After the completion of the study, the health reform shifted the focus. In order to approach the phenomenon of health reform, its implementation and effects on access without preconceived ideas and let local stakeholders narrate their perceptions, study II employed qualitative methods. Possible alternatives, e.g. a mixed-method approach (O’Cathain, Murphy & Nicholl 2008) were hindered by resource constraints. Study 4 was developed based on qualitative findings from study II, moving onward to measure the scope of emergencies and related variables. What remained unclear was the population’s perception of the NGO as a provider, possibly hindering its full potential. This was the reason to use a qualitative design. Although none of the studies used mixed methods, a form of mixed method occurs at the point of joint interpretation of the findings (Yardley & Bishop 2015).

Quantitative methods

Household surveys

Surveys are basic tools in public health research (Bowling 2002). They can provide information about overall utilization of care (O’Donnell et al. 2008), which was made use of in study I and IV. Surveys can measure disease prevalence, but can even be useful in estimating incidence (Petridou et al. 2004). This was aimed for in study IV, however not concerning a specific disease, but a situation that was perceived as urgent. A drawback of surveys is that data usually is reported, not observed (Bowling 2002).

Validity and reliability

Internal validity is concerned with whether a study was able to measure what it intended to measure (Bowling 2002). In order to assure internal validity the questionnaires in study I and IV were in parts based on pre-existing, validated questionnaires (Dong et al. 2003; World Health Orga-

nization 2002; Zhang et al. 2006). In addition, several researchers participated in their development, they were pre-tested and adjusted. Thus content and face validity were likely to be high. Construct validity existed for some items, as several questions addressed the same topics. Internal validity is a prerequisite for external validity, concerned with the generalizability of results. To increase external validity, representative samples need to be examined. Reliability refers to whether an instrument can reproduce findings over time (Bowling 2002). As mentioned, parts of the questionnaires came from pre-existing one's, which had been tested concerning reliability. However, the questionnaires have not been assessed concerning test-retest and inter-rater reliability, thus decreasing reliability somewhat. Other threats to reliability and validity are discussed below.

Interviewer bias

A risk exists that interviewers consciously or subconsciously influence interviewees to respond in a certain way (Bowling 2002). This could have been an issue concerning willingness to join CHI and questions related to traditional providers. The risk of such bias can be diminished by working with interviewers who have a similar social background, culture and language as the respondents. In addition, thorough training and regular supervision are vital (Ross & Vaughan 1986). These principles were employed. A one week long structured training was done in both studies and interviewers were assigned to villages other than their own. Furthermore, in study IV observers were present at around 40% of all interviews, mostly in the beginning of the study to give immediate feedback about errors (Ross & Vaughan 1986). The author gave constant feedback during field research, usually in the evenings, when the completed questionnaires were reviewed.

Recall bias

Recall bias happens due selective memory concerning past events (Bowling 2002). The length of the period in question and case severity influence recall. For common illnesses usually up to four weeks get used, depending on the condition and research question, but longer periods have been applied (Coppo, Pisani & Keita 1992; O'Donnell et al. 2007). Six to 12 months have been used for injuries reported by proxy respondents (Cummings et al. 2005; Harel et al. 1994), for hospital admissions up to 12 months (Ross & Vaughan 1986). An advantage of a 12 months period is that seasonal variations of disease or injury occurrence will not play a role. To diminish the 'telescoping effect', a tendency to remember an event as closer to the present as it really was, collection of dates are recommended (Harel et al. 1994). Concerning ordinary illnesses in study I and IV specific recall periods were not asked for, as the past episode in the household was of concern. Underreporting of lighter cases is possible. The

difference in recall periods between study I and IV (three months versus seven weeks) is due to different assessments of the date. Concerning emergencies, an underreporting of less severe cases cannot be ruled out. Telescoping is unlikely, as dates were recorded. Proxy respondents were tried to keep to a minimum (Ross & Vaughan 1986). They had to be used for patients <15 years, those who did not remember the event or if the former patient was unavailable. 33% of interviews were held with former emergency patients and 52% with those who had taken care of the patient, thus only 15% of interviewees had not been directly involved in the case.

Information bias

The perceived emergencies in study IV were classified according to chief complaints. Those classifications were based on reported symptoms and may thus be subject to information bias. As the sorting into chief complaints was done by three physicians independently, the risk of bias at that stage is believed to be small. There was no intention to come up with final diagnoses, which gets supported by work on emergency care in LMICs (Mowafi et al. 2013). Findings of the most frequent chief complaints are in line with data from a rural emergency department nearby, thus likely representing the local pattern of emergency presentations (Johnson, Gaus & Herrera 2016). Also reported outcome might have been subject to information bias, as no clinical data was collected.

Selection bias

When characteristics of the sample differ from the population of interest selection bias might present (Bowling 2002). Thus samples as random as possible and high response rates should minimize the risk. Especially in study IV the response rate was high. It may be argued that the employed cluster sampling did not lead to a random sample. With the available resources and the lack of complete census data, the method was found to be the most practicable. Possible bias has been shown to be small (Hoshaw-Woodard & World Health Organization 2001). Response bias was minimized by matching interviewers with respondents from villages other than their own. A risk for selection bias exists in study I, where three entire communities (with the exception of one household) abstained from participating. Reasons for non-participation were the reported lack of confidentiality in a previous survey, with the underlying problem of uncertainty of landownership in this community. Another community was in a conflict with others. Reasons in the third one were unclear.

Sample size

The sample size for study I was chosen to include at least one quarter of all households in the region, but no sample size calculation was perfor-

med. Checking this unsophisticated approach with the formula in the methods section (and ignoring actual findings), certain assumptions have to be made. Based on evidence from the literature, feasibility was defined as 50% WTJ. A sample size calculation, assuming 60% willingness to join ($p = 0.6$), with a margin of error of 7% ($MOE = 0.07$) and a confidence level of 90% gives 115 households. Hence, if the true value of WTJ would be 50% or more, this sample size would produce a true result with a high level of confidence. With a response rate of e.g. 60%, 191 households would have had to be sampled. Thus, the chosen sample size was big enough to detect the true value. In both studies, many sub-group analyses had small sizes, reducing the chance to detect statistically significant differences.

SES, wealth and household's ATP

Estimating socio-economic position in LMICs is a difficult task and no gold standard exists (Howe et al. 2012). The composite index used in study I included relative price information, which made it somewhat arbitrary. In study IV a different approach was applied by calculating a wealth index using reciprocal proportions (existence of eight typical items in the household: TV, DVD player, cellphone, fridge, motorbike, car, radio, sound system). The downsides are that quality of housing and ownership of land were left out (Morris et al. 2000). Both indices are displaying relative measures of wealth. Comparison with studies using other approaches cannot be done. Some evidence exists that a wealth index is a more stable measure of socio-economic position than income or expenditure data, due to the latter's fluctuations over time (Liverpool & Winter-Nelson 2010).

In study IV, reported household expenditure during the past month was used as a proxy for household's ATP, after the deduction of expenditure for food (Wagstaff & Doorslaer 2003). As mentioned above, fluctuations over time exist and are difficult to measure if not a longitudinal assessment, for example through diaries, is used. A further limitation is that an interviewee might be unaware of other household members' expenditures. However, fluctuations can be even greater when trying to measure income, e.g. due to seasonal variations from cash crop production. In such cases consumption data is more stable over time (Howe et al. 2012).

Willingness to pay

Willingness to pay can be assessed using different methods. The chosen method of willingness to join CHI for a fixed premium is the take-it-or-leave-it approach. Other possible approaches are the bidding game technique (Dong et al. 2003) and the payment card (Ryan, Scott & Donaldson 2004). The latter requires literacy and could thus not be used because illi-

teracy is common in El Páramo. The bidding game can elicit the highest price a consumer is willing to pay and could have been an alternative.

Catastrophic health expenditure

The chosen approach of assessing CHE has been criticized as it likely underestimates adverse effects due to lacking financial protection in health (Ruger 2012). Besides ignoring lost income, the approach in study IV may be too narrow to fully capture health costs and effects on poor households. Households might get into debt spirals, affecting subsequent health events. A glimpse of this has been captured by assessing how households covered the costs for their emergencies.

Qualitative methods

Trustworthiness

In order to achieve trustworthiness in the qualitative studies, certain steps have been taken which are explained in more detail below. Quality criteria are dependability, credibility, transferability and confirmability (Lincoln & Guba 1985). Reflexivity, the critical self reflection as a researcher is part of this (Korstjens & Moser 2018). Also shortcomings and possible alternative approaches are discussed.

Dependability and confirmability

Dependability can be compared to reliability in quantitative research, confirmability to objectivity (Holloway & Galvin 2017). However, as the researcher is the main research instrument, qualitative studies will never be fully replicable, but they can be repeated. Accepted standards for qualitative research were followed as described in the methods section. All records were kept. By displaying all steps taken throughout the research process and the detailed description of the setting, dependability and confirmability were increased (Korstjens & Moser 2018).

Concerning the latter, I need to disclose that I had my doubts about the 2008 health reform's achievements prior to the study. They arose through my earlier, mainly complicated and disillusioning experience with MPH health services and authorities. Yet, as I was aware of this, had a clear question guide and co-researchers in data analysis and interpretation, confirmability has likely not been jeopardized. In both studies, field research was carried out by foreigners with a different background in culture and language. This might have caused bias, by participants giving answers that they believed to be socially desirable. However, the fact that participants of both, FGDs and key-informant interviews criticized certain NGO services indicates that such bias is likely to be small.

In study II, formal *member validation* was not performed, but preliminary results were presented to a bigger audience, with participants of the FGDs being present. Member validation could have been carried out in a more formal way, earlier on in the field research. In study III, member validation was performed as outlined in the methods section. Concerning the presented findings, participants did not bring forth any objections in either of the occasions.

Credibility

To ensure credibility, comparable to internal validity in quantitative studies, several methods were employed. In study II *prolonged engagement* was used in the FGDs and the derived data, which is partly reflected in the length of the FGDs. However, further insights could have been gained by incorporating a FGD with recent patients. Long lasting engagement in the field was given, by my familiarity with the setting and prior longstanding work in the region. This was also a base for trust from the FGD participants, many of whom I had known for years. Yet, as I was not involved with the health reform in the region and no longer engaged as a project manager, the risk for bias was believed to not be high. Access to the study population could have been difficult without the personal link to the region's inhabitants. Distrust in outsiders, national as well as international is widespread in the region due to uncertainty of landownership and the marginalization of the population. In study III, another researcher carried out the data collection after approval of the NGO and the local health committee. She spent nearly two months in the region, getting familiar with the setting and building trust. The data collection could impossibly have been carried out by myself, as I am known in the region as the initiator of the PHC center and the co-founder of the NGO. Carrying out data collection myself would have led to extremely biased results.

In both studies *persistent observation* took place by reading the transcribed texts several times, identifying meaning units, condensing and coding them, letting (sub-)categories and ultimately themes emerge by moving back and forth in the data and discussing the findings repeatedly with the co-researchers until consensus was reached.

Triangulation. *Investigator triangulation* was applied with two (study II), respectively three researchers (study III) being engaged in coding, analysis and interpretation. In study II, *data triangulation* was performed by incorporating one FGD with a group of health professionals, who contributed with insights from a different angle. They had acquired knowledge about the reform in their professional role. The other FGDs were held with participants who had gained knowledge about the reform due to their role in their communities and/or the health projects. Some had ex-

perienced the new system themselves as patients. In study III, *data triangulation* was achieved by combining the local population's views and perceptions from FGDs with data gathered from key-informant interviews with national and international staff members, a NGO representative and local key persons. This shows also *method triangulation*, as FGDs and key-informant interviews are different methods of data collection.

Transferability

The judgement about transferability has to be made by the reader (Korstjens & Moser 2018). By describing the research setting, context and participants in detail as well as giving an in-depth account of the data, it was aimed for a 'thick description'. This could have been hampered by language constraints, as neither Spanish nor English are the mother tongues of the involved researchers. Regarding study II, it has to be kept in mind that the presence of volunteer doctors could have mitigated a more severe lack of time for patient care than reported in the results. The readers have to judge if the presented findings are transferable to their specific settings.

CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH

Conclusions

This thesis has contributed to knowledge about factors and interventions determining and influencing a rural Ecuadorean population's access to primary health care and emergency care. The following conclusions can be drawn from papers I-IV:

- Prior to the 2008 health reform indications were found that community-based health insurance was a feasible alternative to the out-of-pocket payment system in public health services.
- After well known implementation errors, the 2008 health reform has increased access to rural primary health care by the provision of free drugs and medical attendance. The reform's results were mainly perceived positively by local stakeholders. A lack of drugs and appointments, especially for remote dwellers and a time consuming health information system have been found.
- The NGO's role was generally perceived positively due to health care improvement in the region. A lack of clarity and communication about the public private partnership has led to dissatisfaction. Community participation was found to be a weakness.
- Perceived emergencies were found to be a frequent problem in the population, with health care seeking shifted towards private providers when compared to ordinary illnesses. High health expenditure and catastrophic health expenditure were found.

Recommendations

In order to further improve access to primary and emergency care in rural Ecuador, the following recommendations should be considered:

- Community-based health insurance could have a role in the public health system, to cover services that the Ministry of Public Health does not yet sufficiently provide. A careful assessment of its prerequi-

sites on the political and managerial level, sound economical calculations and involvement of the population in defining the benefit package would need to be undertaken prior to establishing CHI.

- The relative lack of drugs and appointments in the present public health system, especially for remote dwellers, as well as the time consuming health information system should be corrected.
- The NGO should, together with its partners, work towards improved communication about the public private partnership to the target population. Community participation should be strengthened.
- Changes in the organization of public emergency departments, for example through timely triage, and improved financial protection for emergency patients, may increase access to public emergency care and protect patients from catastrophic health expenditure.

Suggestions for future research

The prevalence of catastrophic health expenditure related to perceived emergencies should be studied on a larger scale, in order to confirm the findings from study IV. Barriers to access of public emergency departments and the reduction of those barriers should be studied in order to increase the timely provision of emergency care. Moreover, more knowledge is needed about different options for increased financial protection for patients with perceived emergencies. In this regard, the feasibility of community-based health insurance for wider rural areas should be appraised, including the managerial and the political dimensions.

While the health system in Ecuador is still being adjusted, the development of out-of-pocket health expenditure should be monitored, to study if financial protection for vulnerable groups is increasing.

How community participation in rural health service development can be increased in a sustainable way is another area for future research. In addition, further knowledge is needed about how effective public private partnerships between governments and NGOs can be established and maintained. This should include communication within those partnerships and with the population.

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REFERENCES

- Abejirinde, IO, Ingabire, CM, van Vugt, M, Mutesa, L, van den Borne, B & Busari, JO 2018, 'Qualitative analysis of the health system effects of a community-based malaria elimination program in Rwanda', *Research and Reports in Tropical Medicine*, vol. 9, pp. 63–75. doi:10.2147/RRT-M.S158131
- Abihiro, GA & De Allegri, M 2015, 'Universal health coverage from multiple perspectives: a synthesis of conceptual literature and global debates', *BioMed Central International Health and Human Rights*, vol. 15, no. 17. doi: 10.1186/s12914-015-0056-9
- Action Without Borders 2018, *Idealist*, viewed 21 May 2018, <https://www.ideal-ist.org/en/?type=JOB>
- Aday, LA & Andersen, R 1974, 'A framework for the study of access to medical care', *Health Services Research*, vol. 9, no. 3, pp. 208–220.
- Adebayo, EF, Uthman, OA, Wiysonge, CS, Stern, EA, Lamont, KT & Ataguba JE 2015, 'A systematic review of factors that affect uptake of community-based health insurance in low-income and middle-income countries', *BioMed Central Health Services Research*, vol. 15, no. 543. doi:10.1186/s12913-015-1179-3
- Ahmed, NU, Alam, MM, Sultana, F, Sayeed, SN, Pressman, AM & Powers, MB 2006, 'Reaching the unreachable: barriers of the poorest to accessing NGO healthcare services in Bangladesh', *Journal of Health, Population, and Nutrition*, vol. 24, no. 4, pp. 456–466.
- Aldulaimi, S & Mora, FE, 2017, 'A primary care system to improve health care efficiency: lessons from Ecuador', *Journal of the American Board of Family Medicine*, vol. 30, no. 3, pp. 380–383. doi:10.3122/jabfm.2017.03.160304
- Alfaro-Trujillo, B, Valles-Medina, AM & Vargas-Ojeda, AC 2012, 'Profiles, perceptions and Motivations of Community Health Workers of NGOs in a Border City of US-Mexico', *Journal of Community Health*, vol. 37, no. 3, pp. 583–590. doi: 10.1007/s10900-011-9486-z
- Al-Taiar, A, Clark, A, Longenecker, JC & Whitty, CJM 2010, 'Physical accessibility and utilization of health services in Yemen', *International Journal of Health Geographics*, vol. 9, no. 38. doi:10.1186/1476-072X-9-38
- Andersen, RM 1995, 'Revisiting the behavioral model and access to medical care: does it matter?', *Journal of Health and Social Behavior*, vol. 36, no. 1, pp. 1–10.
- Anderson, PD, Suter, RE, Mulligan, T, Bodiwala, G, Razzak, JA & Mock, C on behalf of the International Federation for Emergency Medicine (IFEM) Task Force on Access and Availability of Emergency Care 2012, 'World health assembly resolution 60.22 and its importance as a health care policy tool for improving emergency care access and availability globally', *Annals of Emergency Medicine*, vol. 60, no. 1, pp. 35–44. doi:10.1016/j.annemergmed.2011.10.018

- Andrade, JM, Lucero Mosquera, H & Armijos, C 2017, 'Ethnobotany of Indigenous Saraguros: Medicinal Plants Used by Community Healers "Hampi-achakkuna" in the San Lucas Parish, Southern Ecuador', *BioMed Research International*, vol. 2017, no. 9343724. doi:10.1155/2017/9343724
- Andrés Alvo, V & Sebastián Aguirre, V 2010, 'Perfil epidemiológico de la atención de urgencias en un hospital tipo 4 de la región metropolitana, Chile [Epidemiological profile of the emergency attention in a type 4 hospital in the metropolitan region, Chile]', *Revista ANACEM*, vol. 4, no. 1, pp. 18–21.
- Asamblea Constituyente 2008, *Constitución de la República del Ecuador [Constitution of the Republic of Ecuador]*, viewed 17 May 2018, https://www.oas.org/juridico/PDFs/mesicic4_ecu_const.pdf
- Baeza C & Packard, TG 2006, *Beyond survival: protecting households from health shocks in Latin America*, viewed 18 May 2018, http://sitere-sources.worldbank.org/INTLAC/Resources/Final_E-Book_Beyond_Survival_English.pdf
- Bennett, S, Creese, A & Monasch, R 1998, *Health insurance schemes for people outside formal sector employment*, viewed 19 June 2018, http://apps.who.int/iris/bitstream/handle/10665/64161/WHO_ARA_CC_98.1.pdf?sequence=1&isAllowed=y
- Bennett, S, Woods, T, Liyanage, WM & Smith DL 1991, 'A simplified general method for cluster-sample surveys of health in developing countries', *World Health Statistics Quarterly*, vol. 44, no. 3, pp. 98–106.
- Berens, SA 2013, *When the high-income country context dissolves: social policy preferences in low- and middle-income democracies*, Doctoral thesis, Köln, Wirtschafts- und Sozialwissenschaftliche Fakultät, Universität zu Köln.
- Biermann, O, Eckhardt, M, Carlford, S, Falk, M & Forsberg, BC 2016, 'Collaboration between non-governmental organizations and public services in health a qualitative case study from rural Ecuador', *Global Health Action*, vol. 9, no. 32237. doi:10.3402/gha.v9.32237
- Bishai, DM, Shah, NM, Walker, DG, Brieger, WR & Peters, DH 2008, 'Social franchising to improve quality and access in private health care in developing countries', *Harvard Health Policy Review*, vol. 9, no. 1, 184–197.
- Boutayeb, A 2006, 'The double burden of communicable and non-communicable diseases in developing countries', *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol. 100, no. 3, pp. 191–199.
- Bowling, A 2002, *Research methods in health: investigating health and health services*, 2nd edn, Open University Press, Buckingham.
- Brinda, EM, Kowal, P, Attermann J & Enemark U 2015, 'Health service use, out-of-pocket payments and catastrophic health expenditure among older people in India: the WHO study on global AGEing and adult health (SAGE)', *Journal of Epidemiology and Community Health*, vol. 69, no. 5, pp. 489–494. doi:10.1136/jech-2014-204960

- Brown, LD & Moore MH 2001, 'Accountability, strategy, and international non-governmental organizations', *Nonprofit and Voluntary Sector Quarterly*, vol. 30, no. 3, pp. 569–587.
- Bussmann, RW & Douglas S 2006, 'Traditional medicinal plant use in Loja province, southern Ecuador', *Journal of Ethnobiology and Ethnomedicine*, vol. 2, no. 44. doi:10.1186/1746-4269-2-44
- Bustos-Córdova, E, Martínez-Pantaleón, OB, Cabrales-Martínez, RG, Amor-Santoyo, S, Benadón-Darszón, E & Cerón-Rodríguez, M 2005, '¿Cuándo un problema de salud es una urgencia médica y cuándo no lo es? [When a health problem is an urgency and when this is non urgent?]', *Revista Mexicana de Pediatría*, vol. 72, no. 6, pp. 308–314.
- Cabieses B & Bird P 2014, 'Glossary of access to health care and related concepts for low- and middle-income countries (LMICs): a critical review of international literature', *International Journal of Health Services*, vol. 44, no. 4, pp. 845–861. doi:10.2190/HS.44.4.j
- Calvet-Mir, L, Reyes-García, V & Tanner, S 2008, 'Is there a divide between local medicinal knowledge and Western medicine? a case study among native Amazonians in Bolivia', *Journal of Ethnobiology and Ethnomedicine*, vol. 4, no. 18. doi:10.1186/1746-4269-4-18
- Campbell, SM, Roland, MO & Buetowet SA 2000, 'Defining quality of care', *Social Science & Medicine*, vol. 51, no. 11, pp. 1611–1625. doi:10.1016/S0277-9536(00)00057-5
- Carrin, G 2003, *Community based health insurance schemes in developing countries: facts, problems and perspectives*, Discussion Paper Number 1, World Health Organization, viewed 16 June 2018, http://apps.who.int/iris/bitstream/handle/10665/69023/EIP_FER_DP.E_03.1.pdf;jsessionid=31F81B8DoA85FC96A2ED4493A9E37B64?sequence=1
- Carrin, G, Mathauer, I, Xu, K & Evans, DB 2008, 'Universal coverage of health services: tailoring its implementation', *Bulletin of the World Health Organization*, vol. 86, no. 11, pp. 857–863.
- Carrin, G, Waelkens, MP & Criel, B 2005, 'Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems', *Tropical Medicine and International Health*, vol. 10, no. 8, pp. 799–811. doi:10.1111/j.1365-3156.2005.01455.x
- Cavender, A, & Albán, M 1998, 'Compulsory medical service in Ecuador: the physician's perspective', *Social Science and Medicine*, vol. 47, no. 12, pp. 1937–1946.
- Cavender AP & Albán M 2009, 'The use of magical plants by curanderos in the Ecuador highlands', *Journal of Ethnobiology and Ethnomedicine*, vol. 5, no. 3. doi:10.1186/1746-4269-5-3
- Cavill, S & Sohail, M 2007, 'Increasing strategic accountability: a framework for international NGOs, development in practice', vol. 17, no. 2, pp. 231–248, doi:10.1080/09614520701196004
- Centeno Sánchez, J, Cruz Toledano, MDC, Domínguez Mendoza, H, Fajardo Ortiz, G 1998, 'Perfil de las demandas de atención médica en el servicio de

- urgencia: 9,515 casos [Profile of the demand of medical attention in the emergency service: 9,515 cases]', *Cirugía y Cirujanos*, vol. 66, no. 1, pp. 21–23.
- Centers for Disease Control and Prevention 2005, *Epi Info, Version 3.3.2*, Centers for Disease Control and Prevention, Atlanta, GA.
- Central Intelligence Agency 2018, *The world factbook: South America: Ecuador*, viewed 28 May 2018, <https://www.cia.gov/library/publications/the-world-factbook/geos/ec.html>
- Chambers R 1995, 'Poverty and livelihoods. Whose reality counts?', *Environment and Urbanization*, vol. 7, no. 1, pp. 173–204. doi:10.1177/095624789500700106
- Chiriboga, SR 2009, 'Incremental health system reform policy - Ecuador's law for the provision of free maternity and child care', *The Journal of Ambulatory Care Management*, vol. 32, no. 2, pp. 80–90. doi:10.1097/JAC.0b013e3181994306
- Clancy, MJ 2002, 'Overview of research designs', *Emergency Medicine Journal*, vol. 19, no. 6, pp. 546–549.
- Cobos Muñoz, D, Merino Amador, P, Monzon Llamas, L, Martinez Hernandez, D & Santos Sancho, JM 2017, 'Decentralization of health systems in low and middle income countries: a systematic review', *International Journal of Public Health*, vol. 62, no. 2, pp. 219–229. doi:10.1007/s00038-016-0872-2
- Commission on Social Determinants of Health 2007, *Social determinants and indigenous health: the international experience and its policy implications*, Report on specially prepared documents, presentations and discussion at the International Symposium on the Social Determinants of Indigenous Health Adelaide, viewed 22 June 2018, http://www.who.int/social_determinants/resources/indigenous_health_adelaide_report_07.pdf
- Coppo, P, Pisani, L & Keita, A 1992, 'Perceived morbidity and health behaviour in a Dogon community', *Social Science and Medicine*, vol. 34, no. 11, 1227–1235.
- Cotlear, D, Gómez-Dantés, O, Knaul, F, Atun, R, Barreto ICHC, Cetrángolo, O, Cueto, M, Francke, P, Frenz, P, Guerrero, R, Lozano, R, Marten, R & Sáenz, R 2015, 'Overcoming social segregation in health care in Latin America', *Lancet*, vol. 385, no. 9974, pp. 1248–1259. doi:10.1016/S0140-6736(14)61647-0
- Council on Hemispheric Affairs 2005, *The IMF and the Washington Consensus: a misunderstood and poorly implemented development strategy*, viewed 18 May 2018, <http://www.coha.org/the-imf-and-the-washington-consensus-a-misunderstood-and-poorly-implemented-development-strategy/>
- Criel, B & Kegels, G 1997, 'A health insurance scheme for hospital care in Bwamanda district, Zaire: lessons and questions after 10 years of functioning', *Tropical Medicine and International Health*, vol. 2, no. 7, pp. 654–672.

- Cronk, R & Bartram J 2018, 'Environmental conditions in health care facilities in low- and middle-income countries: coverage and inequalities', *International Journal of Hygiene and Environmental Health*, vol. 221, pp. 409–422. doi:10.1016/j.ijheh.2018.01.004
- DalGLISH, SL, Poulsen MN & Winch PJ 2013, 'Localization of health systems in low- and middle-income countries in response to long-term increases in energy prices', *Globalization and Health*, vol. 9, no. 56. doi:10.1186/1744-8603-9-56
- Daniel, WW 1995, *Biostatistics: a foundation for analysis in the health sciences*, 6th edn, John Wiley & Sons, New York, NY.
- De Paepe, P, Echeverría Tapia, R, Aguilar Santacruz, E & Unger JP 2012. 'Ecuador's silent health reform', *International Journal of Health Services: Planning, Administration, Evaluation*, vol. 42, no. 2, pp. 219–233. doi: 10.2190/HS.42.2.e
- Desmet, M, Chowdhury, AQ & Islam, MK 1999, 'The potential for social mobilization in Bangladesh: the organization and functioning of two health insurance schemes', *Social Science and Medicine*, vol. 48, no. 7, 925–938.
- Dickson K 1997, 'Colaboración entre organizaciones no gubernamentales y los gobiernos en la reforma del sector de la salud [Collaboration between non-governmental organizations and governments for health sector reform]', *Pan American Journal of Public Health*, vol. 1, no. 1, pp. 324–329.
- Dong, H, Kouyate, B, Cairns, J, Mugisha, F & Sauerborn, R 2003, 'Willingness-to-pay for community-based insurance in Burkina Faso', *Health Economics*, vol. 12., no. 10, pp. 849–862. doi:10.1002/hec.771
- Dong, H, Mugisha, F, Gbangou, A, Kouyate, B & Sauerborn, R 2004, 'The feasibility of community-based health insurance in Burkina Faso', *Health Policy*, vol. 69, no. 1, pp. 45–53.
- Duke, T & Cheema, B 2016, 'Paediatric emergency and acute care in resource poor settings', *Journal of Paediatrics and Child Health*, vol. 52, no. 2, pp. 221–226. doi:10.1111/jpc.13105
- Edwards, M 2000, *NGO rights and responsibilities: a new deal for global governance*, The Foreign Policy Centre, London.
- Ejaz, I, Shaikh, BT & Rizvi N 2011, 'NGOs and government partnership for health systems strengthening: a qualitative study presenting viewpoints of government, NGOs and in Pakistan', *BioMed Central Health Services Research*, vol. 11, no. 122. doi:10.1186/1472-6963-11-122
- Ekman, B 2004, 'Community-based health insurance in low-income countries: a systematic review of the evidence', *Health Policy and Planning*, vol. 19, no. 5, pp. 249–270. doi:10.1093/heapol/czh031
- Espinosa, V, Acuña, C, De la Torre, D & Tambini G 2017, 'La reforma en salud del Ecuador [The health reform in Ecuador]', *Revista Panamericana de Salud Pública*, vol. 41, p. e96.
- Fadlallah, R, El-Jardali, F, Hemadi, N, Morsi, RZ, Abou Samra, CA, Ahmad, A, Arif, K, Hishi, L, Honein-AbouHaidar, G & Akl EA 2018, 'Barriers and facilitators to implementation, uptake and sustainability of community-

- based health insurance schemes in low-and middle-income countries: a systematic review', *International Journal for Equity in Health*, vol. 17, no. 13. doi:10.1186/s12939-018-0721-4
- Fajardo-Ortiz, G & Ramírez-Fernández, FA 2000, 'Utilización del servicio de urgencias en un hospital de especialidades [Utilization of the emergency service in a specialized hospital]', *Cirugía y Cirujanos*, vol. 68, no. 4, pp. 164–68.
- Federal Reserve Bank of St. Louis 2016, *GINI Index for Ecuador*, viewed 18 May 2018, <https://fred.stlouisfed.org/series/SIPOVGINIECU>
- Flores, M & Castillo, A 2012, *Una mirada desde la sociedad civil a la gobernanza del sistema nacional de salud [A view from the civil society towards the governance of the national health system]*, Esfera Pública No. 4., Quito: Grupo FARO, viewed 20 May 2018, <http://grupofaro.org/content/una-mirada-desde-la-sociedad-civil-la-gobernanza-del-sistema-nacional-de-salud>
- Foundation Human Nature n.d., *Volunteer*, viewed 24 May 2018, <http://f-h-n.org/volunteer/ecuador>
- Foundation Human Nature 2012, Informe del procesamiento y análisis estadístico de la información del censo: sector Y de la Laguna [*Information about data handling and statistical analysis of the census information: sector Y de la Laguna*], Working Document, Foundation Human Nature Ecuador, Quito.
- Foundation Human Nature 2017, Weihnachtsrundsreiben 2017 [*Christmas newsletter 2017*], viewed 24 May 2018, http://media.voog.com/0000/0035/6184/files/Rundsreiben_FHN_Winter_17_PDF.pdf
- Fraga, A 2004, 'Latin America since the 1990's: rising from the sickbed?', *Journal of Economic Perspectives*, vol. 18, no. 2, pp. 89–106.
- Gallegos, CA, Waters, WF & Sebert Kuhlmann, A 2017, 'Discourse versus practice: are traditional practices and beliefs in pregnancy and childbirth included or excluded in the Ecuadorian health care system?', *International Health*, vol. 9, no. 2, pp. 105–111. doi:10.1093/inthealth/ihw053
- Gaus, DP 2009, 'The rural hospital in Ecuador', *Health Affairs*, vol. 28, no. 4. doi:10.1377/hlthaff.28.4.1003
- Gellert, GA 1996, 'Non-governmental organizations in international health: past successes, future challenges', *International Journal of Health Planning and Management*, vol. 11, no. 1, pp. 19–31.
- Gessert, C, Waring, S, Bailey-Davis, L, Conway, P, Roberts, M & VanWormer, J 2015, 'Rural definition of health: a systematic literature review', *BioMed Central Public Health*, vol. 15, no. 378. doi:10.1186/s12889-015-1658-9
- Giedion, Ú, Villar, M & Ávila, A 2010, *Los sistemas de salud en Latinoamérica y el papel del seguro privado [Health systems in Latin America and the role of private insurance]*, Fundación MAPFRE, viewed 22 June 2018, <https://www.mapfre.com/ccm/content/documentos/fundacion/cs-seguro/libros/los-sistemas-de-salud-en-latinoamerica-y-el-papel-del-seguro-privado.pdf>

- Gilson, L, Sen, PD, Mohammed, S & Mujinja, P 1994, 'The potential of health sector non-governmental organizations: policy options', *Health Policy and Planning*, vol. 9, no. 1, pp. 14–24.
- Global Burden of Disease Health Financing Collaborator Network 2017, 'Future and potential spending on health 2015–40: development assistance for health, and government, prepaid private, and out-of-pocket health spending in 184 countries', *Lancet*, vol. 389, no. 10083, pp. 2005–2030. doi: 10.1016/S0140-6736(17)30873-5
- Goicolea, I, San Sebastián, M & Wulff, M 2008, 'Women's reproductive rights in the Amazon basin of Ecuador: challenges for transforming policy into practice', *Health and Human Rights*, vol. 10, no. 2, pp. 91–103.
- Gottret, P & Schieber, G 2006, *Health financing revisited: a practitioner's guide*, The World Bank, Washington, DC.
- Graneheim, UH, Lindgren, BM & Lundman B 2017, 'Methodological challenges in qualitative content analysis: a discussion paper', *Nurse Education Today*, vol. 56, pp. 29–34. doi:10.1016/j.nedt.2017.06.002
- Graneheim, UH & Lundman, B 2004, 'Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness', *Nurse Education Today*, vol. 24, pp. 105–112. doi:10.1016/j.nedt.2003.10.001
- Green, JM, Pereyaslov, D, Ahmedov, M & Balabanoa, D 2010, *The use of qualitative methodologies in health services/systems research in low and middle income settings: a narrative literature review*, viewed 27 May 2018, https://kclpure.kcl.ac.uk/portal/files/63171900/Qualitative_Methods_-_for_HSR_2010.pdf
- Guerra Villavicencio, DP 2016, *Efectos de la política de gratuidad de los servicios salud del MSP en el Ecuador. Periodo 2007 - 2014 [Effects of the policy of free of charge health services of the Ministry of Public Health in Ecuador. Period 2007 - 2014]*, Master's thesis, Quito, Universidad San Francisco de Quito.
- Guerrero Gavilanes, MA 2009, *Dilemas de la reforma de salud en América Latina: el caso de Ecuador [Dilemmas of the health reform in Latin America: the case of Ecuador]*, Master's thesis, Rio de Janeiro, Escola Nacional de Saúde Pública Sergio Arouca.
- Guevara, EB & Mendias, EP 2002, 'A comparative analysis of the changes in nursing practice related to health sector reform in five countries of the Americas', *Revista Panamericana de Salud Pública*, vol. 12, no. 5, 347–353.
- Haddad, S 2009, *Perception and acceptance at community level: the case of MSF in Yemen*, viewed 25 May 2018, <https://odihpn.org/magazine/perception-and-acceptance-at-community-level-the-case-of-msf-in-yemen/>
- Harel, Y, Overpeck, MD, Jones, DH, Scheidt, PC, Bijur, PE, Trumble, AC & Anderson, J 1994, 'The effects of recall on estimating annual nonfatal injury rates for children and adolescents', *American Journal of Public Health*, vol. 84, no. 4, pp. 599–605.

- Hart, JT 1971, 'The inverse care law', *Lancet*, vol. 297, no. 7696, pp. 405–412. doi:10.1016/S0140-6736(71)92410-X
- Holloway, I & Galvin, K 2017, *Qualitative research in nursing and healthcare*, 4th edn, Wiley Blackwell, Chichester, West Sussex.
- Hoshaw-Woodard, S & World Health Organization, Department of Vaccines and Biologicals 2001, *Description and comparison of the methods of cluster sampling and lot quality assurance sampling to assess immunization coverage*, viewed 29 May 2018, <https://pdfs.semanticscholar.org/9912/a8a6a3e7c6359ff5482461840d82fd594b27.pdf>
- Howe, LD, Galobardes, B, Matijasevich, Gordon, D, Johnston, D, Onwujekwe, O, Patel, R, Webb, EA, Lawlor, DA & Hargreaves, JR 2012, 'Measuring socio-economic position for epidemiological studies in low- and middle-income countries: a methods of measurement in epidemiology paper', *International Journal of Epidemiology*, vol. 41, no. 3, pp. 871–886. doi: 10.1093/ije/dys037
- Hsia, R, Razzak, J, Tsai, AC & Hirshon, JM 2010, 'Placing emergency care on the global agenda', *Annals of Emergency Medicine*, vol. 56, no. 2, pp. 142–149. doi:10.1016/j.annemergmed.2010.01.013
- Hsieh, HF & Shannon, SE 2005, 'Three approaches to qualitative content analysis', *Qualitative Health Research*, vol. 15, no. 9, pp. 1277–1288. doi: 10.1177/1049732305276687
- IBM Corp. 2015, *IBM SPSS Statistics for Macintosh, Version 23.0*, IBM Corp., Armonk, NY.
- Instituto Ecuatoriano de Seguridad Social 2018, *Aumenta el número de afiliados a la seguridad social*, viewed 20 May 2018, <https://www.iesgob.ec>
- Instituto Nacional de Estadística y Censos n.d., *Resultados del censo 2010 [Results of the 2010 census]*, viewed 18 May 2018, <http://www.ecuadorencifras.gob.ec/resultados/>
- Instituto Nacional de Estadística y Censos 2014, *Anuario de estadística de salud: recursos y actividades [Statistical health almanac: resources and activities]*, viewed 21 May 2018, http://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Sociales/Recursos_Actividades_de_Salud/Publicaciones/Anuario_Rec_Act_Salud_2014.pdf
- Instituto Nacional de Estadística y Censos 2017, *Reporte de pobreza y desigualdad [Poverty and inequality report]*, viewed 21 June 2018, http://www.ecuadorencifras.gob.ec/documentos/web-inec/POBREZA/2017/Diciembre/Reporte%20pobreza%20y%20desigualdad%20_dic17.pdf
- International Labour Organization n.d., *Inventory of official national-level statistical definitions for rural/urban areas*, viewed 16 May 2018, http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/genericdocument/wcms_389373.pdf
- International Labour Organization 2016, *Thematic labour overview 3: working in rural areas in the 21st century. Reality and prospects of rural employment in Latin America and the Caribbean*, viewed 16 May 2018,

- http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_545431.pdf
- Islam, MT, Igarashi, I & Kawabuchi, K 2012, 'The impact of Gonoshasthaya Kendra's micro health insurance plan on antenatal care among poor women in rural Bangladesh', *Bioscience Trends*, vol. 6, no. 4, pp. 165–175.
- James, C, Hanson, K, McPake, B, Balabanova, D, Gwatkin, D, Hopwood, I, Kirunga, C, Knippenberg, R, Meessen, B, Morris, SS, Preker, A, Souteyrand, Y, Tibouti, A, Villeneuve, P & Xu, K 2006, 'To retain or remove user fees?: reflections on the current debate in low- and middle-income countries', *Applied Health Economics and Health Policy*, vol. 5, no. 3, pp. 137–153.
- Johnson, T, Gaus, D & Herrera, D 2016, 'Emergency Department of a Rural Hospital in Ecuador', *The Western Journal of Emergency Medicine*, vol. 17, no. 1, pp. 66–72. doi:10.5811/westjem.2015.11.27936
- Jolliffe, D & Prydz, EB 2015, *Global poverty goals and prices: how purchasing power parity matters*, Policy Research Working Paper 7256, World Bank, viewed 28 April 2018, <http://documents.worldbank.org/curated/en/274691467991957918/pdf/WPS7256.pdf>
- Khan, JAM, Ahmed, S, & Evans, TG 2017, 'Catastrophic healthcare expenditure and poverty related to out-of-pocket payments for healthcare in Bangladesh—an estimation of financial risk protection of universal health coverage', *Health policy and planning*, vol. 32, no. 8, pp. 1102–1110. doi:10.1093/heapol/czx048
- Khanom, NA 2011, 'The effects of public-private partnerships on ultra-poor households in Bangladesh: evidence from the IGVGD programme', *Asia Pacific Journal of Public Administration*, vol. 33, no. 2, pp. 117–141. doi:10.1080/23276665.2011.10779381
- Kickbusch, I & Quick, J 1998, 'Partnerships for health in the 21st century', *World Health Statistics Quarterly*, vol. 51, no. 1, pp. 68–74.
- Knaul, FM, Wong, R, Arreola-Ornellas, H, Méndez, O & Network on Health Financing and Social Protection in Latin America and the Caribbean (LAN-ET) 2011, 'Household catastrophic health expenditures: a comparative analysis of twelve Latin American and Caribbean countries', *Salud pública de México*, vol. 53, suppl. 2, pp. 85–95.
- Knipper, M 2001, 'Zwischen mal aire und Malaria – medizinischer Pluralismus bei den Naporuna im Amazonastiefland von Ecuador [Between mal aire and malaria – medical pluralism among the Naporuna in the Ecuadorean Amazon basin]', *INDIANA*, vol. 17/18, pp. 293–316. doi:10.18441/ind.v17i10.289-312
- Kobusingye, OC, Hyder, AA, Bishai, D, Hicks, ER, Mock, C & Joshipura M 2005, 'Emergency medical systems in low- and middle- income countries: recommendations for action', *Bulletin of the World Health Organization*, vol. 83, no. 8, pp. 626–631.
- Korstjens, I & Moser, A 2018, 'Series: practical guidance to qualitative research. Part 4: trustworthiness and publishing', *European Journal of General Practice*, vol. 24, no. 1, pp. 120–124. doi:10.1080/13814788.2017.1375092

- Krisher, LK, Krisher, J, Ambuludi, M, Arichabala, A, Beltrán-Ayala, E, Navarrete, P, Ordoñez, T, Polhemus, ME, Quintana, F, Rochford, R, Silva, M, Bazo, J & Stewart-Ibarra AM 2016, 'Successful malaria elimination in the Ecuador-Peru border region: epidemiology and lessons learned', *Malaria Journal*, vol. 15, no. 1, p. 573. doi:10.1186/s12936-016-1630-x
- Krueger, RA & Casey, MA 2009, *Focus groups: a practical guide for applied research*, 4th edn, Sage Publications, London.
- Krug, GK, Sharma, GK & Lozano, R 2000, 'The global burden of injuries', *American Journal of Public Health*, vol. 90, no. 4, pp. 523-526.
- Larrea, C 2004, 'Dolarización y desarrollo humano en Ecuador [Dollarisation and human development in Ecuador]', *Iconos, Revista de Ciencias Sociales*, vol 19, pp. 43-53.
- Leung, J, McKenzie, S, Martin, J & McLaughlin D 2014, 'Effect of rurality on screening for breast cancer: a systematic review and meta-analysis comparing mammography', *Rural and Remote Health*, vol. 14, no. 2730.
- Levesque, JF, Harris, MF & Russell, G 2013, 'Patient-centred access to health care: conceptualising access at the interface of health systems and populations', *International Journal for Equity in Health*, vol. 12, no. 18. doi: 10.1186/1475-9276-12-18
- Levin, A & Kaddar, M 2011, 'Role of the private sector in the provision of immunization services in low- and middle-income countries', *Health Policy and Planning*, vol. 26, suppl. 1, pp. i4-i12. doi:10.1093/heapol/czr037
- Levine, AC, Presser, DZ, Rosborough, S, Ghebreyesus, TA & Davis, MA 2007, 'Understanding barriers to emergency care in low-income countries: view from the front line', *Prehospital and Disaster Medicine*, vol. 22, no. 5, 467-470.
- Lewis, D & Kanji N 2009, *Non-governmental organizations and development*, Routledge, London and New York, NY.
- Lincoln, YS & Guba, EG 1985, *Naturalistic inquiry*. Sage Publications, Beverly Hills, CA.
- Liverpool LSO & Winter-Nelson A 2010, *Asset versus consumption poverty and poverty dynamics in the presence of multiple equilibria in rural Ethiopia*, IFPRI Discussion Paper 00971, International Food Policy Research Institute, viewed 20 June 2018, https://www.researchgate.net/publication/46442062_Asset_versus_consumption_poverty_and_poverty_dynamics_in_the_presence_of_multiple_equilibria_in_rural_Ethiopia
- Loevinsohn, B & Harding, A 2005, 'Buying results? Contracting for health service delivery in developing countries', *Lancet*, vol. 366, no. 9486, 676-681.
- López-Cevallos, DF & Chi, C 2010, 'Health care utilization in Ecuador: a multi-level analysis of socio-economic determinants and inequality issues', *Health Policy and Planning*, vol. 25, no. 3, pp. 209-218. doi:10.1093/heapol/czp052
- Lucio, R, Villacrés N & Henríquez R 2011, 'Sistema de salud de Ecuador [The health system of Ecuador]', *Salud Pública de México*, vol. 53, suppl. 2, pp. s177-s187.

- Malo-Serrano, M & Malo-Corral, N 2014, 'Reforma de salud en Ecuador: nunca más el derecho a la salud como un privilegio [Health reform in Ecuador: never again the right to health as a privilege]', *Revista Peruana de Medicina Experimental y Salud Pública*, vol. 31, no. 4, pp. 754–761.
- Malterud, K 2001, 'Qualitative research: standards, challenges, and guidelines', *Lancet*, vol. 358, no. 9280, 483–488.
- Martín-Mayoral, F & Fernández Sastre 2017, 'Determinants of social spending in Latin America during and after the Washington consensus: a dynamic panel error-correction model analysis', *Latin American Economic Review*, vol. 26, no. 10. doi:10.1007/s40503-017-0053-6
- McCoy, D, Chand, S & Sridhar, D 2009, 'Global health funding: how much, where it comes from and where it goes', *Health Policy and Planning*, vol. 24, no. 6, pp. 407–417. doi:10.1093/heapol/czp026
- McIntosh, N, Grabowski, A, Jack, B, Nkabane-Nkholongo, EL & Vian, T 2015, 'A public-private partnership improves clinical performance in a hospital network in Lesotho', *Health Affairs*, vol. 34, no. 6, 954–962. doi:10.1377/hlthaff.2014.0945
- McIntyre, D, Thiede, M & Birch, S 2009, 'Access as a policy-relevant concept in low- and middle-income countries', *Health Economics, Policy and Law*, vol. 4, no. 2, pp. 179–193. doi:10.1017/S1744133109004836
- Mercer, A, Khan, MH, Daulatuzzaman, M & Reid, J 2004, 'Effectiveness of an NGO primary health care programme in rural Bangladesh: evidence from the management information system', *Health Policy and Planning*, vol. 19, no. 4, pp. 187–198. doi:10.1093/heapol/czh024
- Ministerio de Relaciones Exteriores y Movilidad Humana 2018, *Directorio ONG [NGO directory]*, viewed 20 May 2018, <http://app.seteci.gob.ec/directorio-ong/frontEnd/directorio.php#>
- Moreno-Brid, JC, Pérez Caldentey, E & Ruíz Nápoles, P 2004, 'The Washington consensus: a Latin American perspective fifteen years later', *Journal of Post Keynesian Economics*, vol. 27, no. 2, 345–365.
- Morgans, A & Burgess, SJ 2011, 'What is a health emergency? The difference in definition and understanding between patients and health professionals', *Australian Health Review*, vol. 35, no. 3, pp. 284–289. doi:10.1071/AH10922
- Morris, SS, Carletto, C, Hoddinott, J & Christiaensen, LJM 2000, 'Validity of rapid estimates of household wealth and income for health surveys in rural Africa', *Journal of Epidemiology and Community Health*, vol. 54, no. 5, pp. 381–387.
- Mowafi, H, Dworkis, D, Bisanzo, M, Hansoti, B, Seidenberg, P, Obermeyer, Z, Hauswald, M & Reynolds TA 2013, 'Making recording and analysis of chief complaint a priority for global emergency care research in low-income countries', *Academic Emergency Medicine*, vol. 20, no. 12, pp. 1241–1245. doi:10.1111/acem.12262
- Muñoz Marcillo, JL, Andrade Mecía, M & González Osorio, B 2016, 'Cambio multitemporal de la cobertura vegetal y fragmentación en la reserva

- ecológica “Mache-Chindul” Ecuador [Multitemporal change in plant coverage and fragmentation of the ecological reserve “Mache-Chindul”], *European Scientific Journal*, vol. 12, no. 30, pp. 152–165. doi: 10.19044/esj.2016.v12n30p152
- NGO Code of Conduct for Health Systems Strengthening Initiative n.d., *Definitions*, viewed 11 May 2018, <http://ngocodeofconduct.org/definitions/>
- Nielsen, K, Mock, C, Joshipura, M, Rubiano, AM, Zakariah, A & Rivara, F 2012, ‘Assessment of the status of prehospital care in 13 low- and middle-income countries’, *Prehospital Emergency Care*, vol. 16, no. 3, 381–389. doi: 10.3109/10903127.2012.664245
- Obermeyer, Z, Abujaber, S, Makar, M, Stoll, S, Kayden, SR, Wallis, LA, & Reynolds TA on behalf of the Acute Care Development Consortium 2015, ‘Emergency care in 59 low- and middle-income countries: a systematic review’, *Bulletin of the World Health Organization*, vol. 93, pp. 577–586. doi:10.2471/BLT.14.148338
- Obiyan, AS 2005, ‘A critical examination of the state versus non-governmental organizations (NGOs) in the policy sphere in the global south: will the state die as the NGOs thrive in Sub-Saharan Africa and Asia?’, *African and Asian Studies*, vol. 4, no. 3., pp. 301–325. doi: 10.1163/156920905774270475
- Obrist, B, Iteba, N, Lengeler, C, Makemba, A, Mshana, C, Nathan, R, Alba, S, Dillip, A, Hetzel, MW, Mayumana, I, Schulze, A & Mshinda, H 2007, ‘Access to health care in contexts of livelihood insecurity: A framework for analysis and action’, *Public Library of Science Medicine*, vol. 4, no. 10, p. e308. doi:10.1371/journal.pmed.0040308
- O’Cathain, A, Murphy, E & Nicholl, J 2008, ‘The quality of mixed methods studies in health services research’, *Journal of Health Services Research and Policy*, vol. 13, no. 2, pp. 92–98. doi:10.1258/jhsrp.2007.007074
- O’Donnell, O, van Doorslaer, E, Rannan-Eliya, RP, Somanathan, A, Adhikari, SR, Harbianto, D, Garg, CC, Hanvoravongchai, P, Huq, MN, Karan, A, Leung, GM, Ng, CW, Pande, BR, Tin, K, Tisayaticom, K, Trisnantoro, L, Zhang, Y & Zhao Y 2007, ‘The incidence of public spending on healthcare: comparative evidence from Asia’, *The World Bank Economic Review*, vol. 21, no. 1, pp. 93–123. doi:10.1093/wber/lhlo09
- O’Donnell, O, van Doorslaer, E, Wagstaff, A & Lindelow, M 2008, *Analyzing health equity using household survey data: a guide to techniques and their implementation*, World Bank, Washington, DC.
- Olinto, P, Beegle, K, Sobrado C & Uematsu, H 2013, *The state of the poor: where are the poor, where is extreme poverty harder to end, and what is the current profile of the world’s poor?* Poverty Reduction and Economic Management (PREM) Network, no. 125, World Bank, viewed, 27 April 2018, <http://siteresources.worldbank.org/EXTPREMNET/Resources/EP125.pdf>
- Oliver, A & Mossialos, E 2004, ‘Equity of access to health care: outlining the foundations for action’, *Journal of Epidemiology and Community Health*, vol. 58, no. 8, pp. 655–658. doi:10.1136/jech.2003.017731

- Ordoñez Llanos G 2005, *Inequities and effective coverage: review of a community health programme in Esmeraldas, Ecuador*, Master's thesis, Amsterdam, Royal Tropical Institute, Vrije Universiteit Amsterdam.
- Ortiz, J, Van Camp, J, Wijaya, S, Donoso, S & Huybregts, L 2013, 'Determinants of child malnutrition in rural and urban Ecuadorian highlands', *Public Health Nutrition*, vol. 17, no. 9, 2122–2130. doi: 10.1017/S1368980013002528
- Paciorek, CJ, Stevens, GA, Finucane, MM & Ezzati, M, on behalf of the Nutrition Impact Model Study Group (Child Growth) 2013, 'Children's height and weight in rural and urban populations in low-income and middle-income countries: a systematic analysis of population-representative data', *Lancet Global Health*, vol. 1, pp. e300–e309.
- Pan American Health Organization 2006, *Principles governing relations between the Pan American Health Organization and non-governmental organizations*, viewed 14 May 2018, <http://iris.paho.org/xmlui/bitstream/handle/123456789/5638/CE139-07-e.pdf?sequence=1&isAllowed=y>
- Pan American Health Organization 2007, *Health in the Americas: Ecuador*, Washington, DC.
- Pan American Health Organization 2008, *Health systems profile: Ecuador, monitoring and analysis of the change and reform process*, 3rd edn, viewed 17 May 2018, http://www1.paho.org/hq/dmdocuments/2010/Health_System_Profile-Ecuador_2008.pdf
- Pan American Health Organization 2011, *Ecuador: comités de bioética en investigación y asistenciales* [Ecuador: bioethics committees in research and care], viewed 31 May 2018, https://www.paho.org/ecu/index.php?option=com_content&view=article&id=273:comites-bioetica-investigacion-asistenciales&Itemid=360
- Pan American Health Organization 2017, *Health in the Americas: Ecuador*, viewed 20 May 2018, <https://www.paho.org/salud-en-las-americas-2017/?p=4272>
- Papo, JK, Bauni, EK, Sanders, EJ, Brocklehurst, P & Jaffe, HW 2011, 'Exploring the condom gap: is supply or demand the limiting factor – condom access and use in an urban and a rural setting in Kilifi district, Kenya', *AIDS*, vol. 25, pp. 247–255. doi:10.1097/QAD.0b013e328341b9b8
- Patton MQ 2002, *Qualitative research & evaluation methods*, 3rd edn, Sage Publications, London.
- Penchansky R & Thomas JW 1981, 'The concept of access: definition and relationship to consumer satisfaction', *Medical Care*, vol. 19, no. 2, pp. 127–140.
- Peters, DH, Garg, A, Bloom, G, Walker, DG, Brieger, WR & Rahman, MH 2008, 'Poverty and access to health care in developing countries', *Annals of the New York Academy of Sciences*, vol. 1136, pp. 161–171. doi:10.1196/annals.1425.011
- Petridou, E, Dessypris, N, Frangakis, CE, Belechri, M, Mavrou, A & Trichopoulos, D 2004, 'Estimating the population burden of injuries: a comparison

- of household surveys and emergency department surveillance', *Epidemiology*, vol. 15, no. 4, pp. 428–432.
- Pfeiffer J 2003, 'International NGOs and primary health care in Mozambique: the need for a new model of collaboration', *Social Science & Medicine*, vol. 56, no. 4, pp. 725–738.
- Population Reference Bureau 2015, *The urban-rural divide in health and development*, viewed 30 April 2018, <https://assets.prb.org/pdf15/urban-rural-datasheet.pdf>
- Qin, X, Luo H, Feng, J, Li, Y, Wei, B & Feng, Q 2017, 'Equity in health financing of Guangxi after China's universal health coverage: evidence based on health expenditure comparison in rural Guangxi Zhuang autonomous region from 2009 to 2013', *International Journal for Equity in Health*, vol. 16, no. 174. doi:10.1186/s12939-017-0669-9
- Rasch, D & Bywater, K 2014, 'Health promotion in Ecuador: a Solution for a failing system', *Health*, vol. 6, no. 10, pp. 916–925. doi:10.4236/health.2014.610115
- Ranson, MK 2002, 'Reduction of catastrophic health care expenditures by a community-based health insurance scheme in Gujarat, India: current experiences and challenges', *Bulletin of the World Health Organization*, vol. 80, no. 8, pp. 613–621.
- Ricketts, TC & Goldsmith, LJ 2005, 'Access in health services research: the battle of the frameworks', *Nursing Outlook*, vol. 53, no. 6, pp. 274–280. doi: 10.1016/j.outlook.2005.06.007
- Ridde, V & Diarra, A 2009, 'A process evaluation of user fees abolition for pregnant women and children under five years in two districts in Niger (West Africa)', *BioMed Central Health Services Research*, vol. 9, no. 89. doi: 10.1186/1472-6963-9-89
- Ridde, V & Morestin, F 2011, 'A scoping review of the literature on the abolition of user fees in health care services in Africa', *Health Policy and Planning*, vol. 26, no. 1, 1–11. doi:10.1093/heapol/czq021
- Roberts, B & Browne, J 2011, 'A systematic review of factors influencing the psychological health of conflict-affected populations in low- and middle-income countries', *Global Public Health*, vol. 6, no. 8, pp. 814–829. doi: 10.1080/17441692.2010.511625
- Ron, A 1999, 'NGOs in community health insurance schemes: examples from Guatemala and the Philippines', *Social Science & Medicine*, vol. 48, no. 7, pp. 939–950.
- Ross, DA & Vaughan, JP 1986, 'Health interview surveys in developing countries: a methodological review', *Studies in Family Planning*, vol. 17, no. 2, pp. 78–94.
- Ruger, JP 2012, 'An alternative framework for analyzing financial protection in health', *Public Library of Science Medicine*, vol. 9, no. 8, p. e1001294. doi: 10.1371/journal.pmed.1001294
- Russell, DJ, Humphreys, JS, Ward, B, Chisholm, M, Buykx, P, McGrail, M, & Wakerman J 2013, 'Helping policy-makers address rural health access

- problems', *The Australian Journal of Rural Health*, vol. 21, no. 2, pp. 61–71. doi:10.1111/ajr.12023
- Russel, S 2005, 'Illuminating cases: understanding the economic burden of illness through case study household research', *Health Policy and Planning*, vol. 20, no. 5, pp. 277–289. doi:10.1093/heapol/czi035
- Ryan, M, Scott, DA & Donaldson C 2004, 'Valuing health care using willingness to pay: a comparison of the payment card and dichotomous choice methods', *Journal of Health Economics*, vol. 23, no. 2, pp. 237–258. doi: 10.1016/j.jhealeco.2003.09.003
- Sapelli, C & Vial, B 2003, 'Self-selection and moral hazard in Chilean health insurance', *Journal of Health Economics*, vol. 22, no. 3, pp. 459–476. doi: 10.1016/S0167-6296(02)00121-2
- Schneider, F, Buehn, A & Montenegro, CE 2010, 'New estimates for the shadow economies all over the world', *International Economic Journal*, vol. 24, no. 4, pp. 443–461. doi:10.1080/10168737.2010.525974
- Schneider, H, Hlophe, H & van Rensburg, D, 2008, 'Community health workers and the response to HIV/AIDS in South Africa: tensions and prospects', *Health Policy and Planning*, vol. 23, no. 3, pp. 179–187. doi:10.1093/heapol/czn006
- Sesma-Vázquez, S, Pérez-Rico, R, Sosa-Manzano, CL & Gómez-Dantés, O 2005, 'Gastos catastróficos por motivos de salud en México: magnitud, distribución y determinantes [Catastrophic health expenditures in Mexico: magnitude, distribution and determinants]', *Salud Pública de México*, vol. 47, suppl. 1, pp. S37–S46.
- Shayo, EH, Senkoro, KP, Momburi, R, Olsen, ØE, Byskov, J, Makundi, EA, Kamuzora, P & Mboera LEG 2016, 'Access and utilisation of healthcare services in rural Tanzania: a comparison of public and non-public facilities using quality, equity, and trust dimensions', *Global Public Health*, vol. 11, no. 4, pp. 407–422. doi:10.1080/17441692.2015.1132750
- Sofaer, S & Firminger, K 2005, 'Patient perceptions of the quality of health services', *Annual Review of Public Health*, vol. 26, pp. 513–559. doi: 10.1146/annurev.publhealth.25.050503.153958
- Solberg E 2015, 'From MDGs to SDGs: the political value of common global goals', *Harvard International Review*, viewed 30 April 2018, <http://hir.harvard.edu/article/?a=12599>
- Spaan, E, Mathijssen, J, Tromp, N, McBain, F, ten Have, A & Baltussen, R 2012, 'The impact of health insurance in Africa and Asia: a systematic review', *Bulletin of the World Health Organization*, vol. 90, no. 9, pp 685–692. doi:10.2471/BLT.12.102301
- Stefanini A 1995, 'Sustainability: the role of NGOs', *World Health Forum*, vol. 16, no. 1, pp. 42–46.
- Strasser, R, Kam, SM & Regalado SM 2016, 'Rural health care access and policy in developing countries', *Annual Review of Public Health*, vol. 37, pp.395–412. doi: 10.1146/annurev-publhealth-032315-021507

- Su, TT, Kouyaté, B & Flessa, S 2006, 'Catastrophic household expenditure for health care in a low-income society: a study from Nouna District, Burkina Faso', *Bulletin of the World Health Organization*, vol. 84, no. 1, 21–27.
- Sudharsanan, N & Bloom, DE 2018, 'The demography of aging in low- and middle-income countries: chronological versus functional perspectives' in MD Hayward & MK Majmundar (eds), *Future directions for the demography of aging: proceedings of a workshop, E-Book*, The National Academies Press, Washington, DC, available at <https://www.nap.edu/read/25064/>
- Targa, LV, Couper, ID & Worley P 2014, 'A new ally for the promotion of better rural health in Latin America', *Rural and Remote Health*, vol. 14, no. 3376.
- Tarimo, E 1991, *Towards a healthy district: organizing and managing district health systems based on primary health care*, World Health Organization, viewed 3 May 2018, <https://files-eric-ed-gov.e.bibl.liu.se/fulltext/ED337548.pdf>
- Tejerina Silva, H, Soors, W, De Paepe, P, Aguilar Santacruz, E, Closon, MC & Unger, JP 2009, 'Socialist government health policy reforms in Bolivia and Ecuador: the underrated potential of comprehensive primary health care to tackle the social determinants of health', *Social Medicine*, vol. 4, no. 4, pp. 226–234.
- Torres, I & López-Cevallos, DF 2017, '¿Reforma de salud en Ecuador como modelo de éxito? Crítica al número especial de la Revista Panamericana de Salud Pública [Health reform in Ecuador as a successful model? Critique of the special issue of the Pan American Journal of Public Health]', *Revista Panamericana de Salud Pública*, vol. 41, p. e148. doi:10.26633/RPSP.2017.148
- Trostle, JA, Yépez-Montufar, JA, Corozo-Angulo, B & Rodríguez, M 2010, 'Males diarreicos en la costa ecuatoriana: cambios socioambientales y concepciones de salud [Diarrheal illnesses on the Ecuadorian coast: socio-environmental changes and health concepts]', *Cadernos de Saúde Pública*, vol. 26, no. 7, pp. 1334–1344. doi:10.1590/S0102-311X2010000700012
- Umeh, CA & Feeley, FG 2017, 'Inequitable access to health care by the poor in community-based health insurance programs: a review of studies from low- and middle-income countries', *Global Health, Science and Practice*, vol. 5, no. 2, pp. 299–314. doi:10.9745/GHSP-D-16-00286
- UNESCO 2015, *Comisión nacional de bioética en salud-MSP de Ecuador [National commission of bioethics in health-MPH Ecuador]*, viewed 31 May 2018, <http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Montevideo/pdf/CNB-Ec-REDUNESCOCNBSECUADOR2015.pdf>
- United Nations 2015, *Millennium Development Goals indicators*, viewed 16 May 2018, <http://mdgs.un.org/unsd/mdg/Data.aspx>
- United Nations, Department of Economic and Social Affairs, Population Division 2014, *World urbanization prospects: the 2014 revision, highlights (ST/ESA/SER.A/352)*, viewed 26 April 2018, <https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Report.pdf>

- United Nations Development Programme 2016, *Human development report 2016: human development for everyone*, viewed 16 May 2018, http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf
- United Nations, Economic and Social Council 2017, *Progress towards the sustainable development goals: report of the secretary-general*, viewed 27 April 2018, <https://unstats.un.org/sdgs/files/report/2017/secretary-general-sdg-report-2017--EN.pdf>
- United Nations General Assembly 1948, *Universal declaration of human rights*, viewed 3 May 2018, <https://www.un.org/en/universal-declaration-human-rights/index.html>
- United Nations Statistics Division 2017, *Population density and urbanization*, viewed 27 April 2018, <https://unstats.un.org/unsd/demographic/sconcerns/densurb/densurbmethods.htm>
- Vissandjée, B, Abdool, SN & Dupéré S 2002, 'Focus groups in rural Gujarat, India: a modified approach', *Qualitative Health Research*, vol. 12, no. 6, pp. 826–843.
- Wagstaff, A 2008, *Measuring financial protection in health*, Policy Research Working Paper 4554, World Bank, viewed 4 June 2018, <http://documents.worldbank.org/curated/en/157391468140940134/pdf/wps4554.pdf>
- Wagstaff, A, Dmytraczenko, T, Almeida, G, Buisman, L, Hoang-Vu Eozenou, P, Bredenkamp, C, Cercone, JA, Diaz, Y, Maceira, D, Molina, S, Paraje, G, Ruiz, F, Sarti, F, Scott, J, Valdivia, M & Werneck H 2015, 'Assessing Latin America's progress toward achieving universal health coverage', *Health Affairs*, vol. 34, no. 10, pp. 1704–1712. doi:10.1377/hlthaff.2014.1453
- Wagstaff, A & van Doorslaer, E 2003, 'Catastrophe and impoverishment in paying for health care: with applications to Vietnam 1993–1998', *Health Economics*, vol. 12, no. 11, pp. 921–934. doi:10.1002/hec.776
- Walley, J, Lawn, JE, Tinker, A, de Francisco, A, Chopra, M, Rudan, I, Bhutta, ZA, Black, RE & the Lancet Alma-Ata Working Group 2008, 'Primary health care: making Alma-Ata a reality', *Lancet*, vol. 372, no. 9642, pp. 1001–1007. doi:10.1016/S0140-6736(08)61409-9
- Whyte, EB & Olivier, J 2016, 'Models of public–private engagement for health services delivery and financing in Southern Africa: a systematic review', *Health Policy and Planning*, vol. 31, no. 10, pp. 1515–1529. doi:10.1093/heapol/czw075
- World Bank n.d., *Poverty data*, viewed 26 June 2018, <https://datahelpdesk.worldbank.org/knowledgebase/topics/21164-poverty-data>
- World Bank 2005, *Creating fiscal space for poverty reduction in Ecuador: a fiscal management and public expenditure review*, viewed 18 May 2018, <https://openknowledge.worldbank.org/handle/10986/7296>
- World Bank 2013, *Measuring the real size of the world economy: the framework, methodology and results of the international comparison program-ICP*, Washington, DC.

- World Bank 2015, *Purchasing power parities and the real size of world economies: a comprehensive report of the 2011 international comparison program*, Washington, DC.
- World Bank 2018a, *Fragility, conflict & violence*, viewed 27 June 2018, <http://www.worldbank.org/en/topic/fragilityconflictviolence/overview>
- World Bank 2018b, *The World Bank in Ecuador*, viewed 17 May 2018, <http://www.worldbank.org/en/country/ecuador/overview>
- World Bank 2018c, *World Bank country and lending groups*, viewed 27 June 2018, <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- World Health Organization 1946, *Constitution of the World Health Organization*, viewed 3 May 2018, <http://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1>
- World Health Organization 1978, *Declaration of Alma-Ata*, viewed 9 May 2018, http://www.who.int/publications/almaata_declaration_en.pdf
- World Health Organization 1987, *Declaration on strengthening district health systems based on primary health care*, viewed 3 May 2018, <http://www.who.int/iris/handle/10665/61958>
- World Health Organization 2002, *World health survey 2002: individual questionnaire*. World Health Organization, Geneva.
- World Health Organization 2006, *The World health report 2006: working together for health*, viewed 17 June 2018, <http://www.who.int/whr/2006/en/>
- World Health Organization 2008, *The world health report 2008: primary health care now more than ever*, viewed 11 May 2018, http://www.who.int/whr/2008/whr08_en.pdf
- World Health Organization 2012, *Health policy and systems research: a methodology reader / edited by Lucy Gilson*, viewed 25 May 2018, <http://www.who.int/alliance-hpsr/resources/reader/en/>
- World Health Organization 2014, *World health statistics 2014*, viewed 27 June 2018, http://apps.who.int/iris/bitstream/handle/10665/112738/9789240692671_eng.pdf?sequence=1
- World Health Organization 2015, *Health in 2015: from MDGs, millennium development goals to SDGs, sustainable development goals*, viewed 30 April 2018, <http://www.who.int/gho/publications/mdgs-sdgs/en/>
- World Health Organization 2018a, *Countries: Ecuador*, viewed 15 May 2018, <http://www.who.int/countries/ecu/en/>
- World Health Organization 2018b, *Global health expenditure database*, viewed 21 May 2018, <http://apps.who.int/nha/database/Home/Index/en>
- World Health Organization and United Nations Children's Fund 2015, *Progress on sanitation and drinking water: 2015 update and MDG assessment*, viewed 30 April 2018, http://apps.who.int/iris/bitstream/10665/177752/1/9789241509145_eng.pdf?ua=1

- Xu, K, Evans, DB, Carrin, G, Aguilar-Rivera, AM, Musgrove, P & Evans, T 2007, 'Protecting households from catastrophic health spending', *Health Affairs*, vol. 26, no. 4, pp. 972–983. doi:10.1377/hlthaff.26.4.972
- Xu, K, Evans, DB, Kawabata, K, Zeramndini, R, Klavus, J & Murray, CJL 2003, 'Household catastrophic health expenditure: a multicountry analysis', *Lancet*, vol. 362, no. 9378, pp. 111–117. doi:10.1016/S0140-6736(03)13861-5
- Yardley, L & Bishop, FL 2015, 'Using mixed methods in health research: benefits and challenges', *British Journal of Health Psychology*, vol. 20, no. 1, pp. 1–4. doi: 10.1111/bjhp.12126
- Yilmaa, Z, van Kempen, L & de Hoop, T 2012, 'A perverse 'net' effect? Health insurance and ex-ante moral hazard in Ghana', *Social Science and Medicine*, vol. 75, no. 1, 138–147. doi:10.1016/j.socscimed.2012.02.035
- Zhang, X, Dupre, ME, Qiu, L, Zhou, W, Zhao, Y & Gu, D 2017, 'Urban-rural differences in the association between access to healthcare and health outcomes among older adults in China', *BioMed Central Geriatrics*, vol. 17, no. 151. doi:10.1186/s12877-017-0538-9
- Zhang, L & Wang, H 2008, 'Dynamic process of adverse selection: Evidence from a subsidized community-based health insurance in rural China', *Social Science and Medicine*, vol. 67, no. 7, pp. 1173–1182. doi:10.1016/j.socscimed.2008.06.024
- Zhang, L, Wang, H, Wang, L & Hsiao, W 2006, 'Social capital and farmer's willingness-to-join a newly established community-based health insurance in rural China', *Health Policy*, vol. 76, no. 2, pp. 233–242.

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