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How do community health workers institutionalise: An analysis of Brazil's CHW programme

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ABSTRACT

Community health workers (CHWs) are framed as the link between communities and the formal health system. CHWs must establish trusting relationships with the community and with the broader health service. How to find the optimal balance between the various strands of work for CHWs, and how to formalise this, has been the focus of different studies. We performed an extensive documentary analysis of federal legislation in Brazil to understand the institutionalisation of the CHW workforce in Brazil over the last 3 decades. The paper offers three contributions to the literature: the development and application of an analytical framework to consider the institutionalisation process of CHWs; a historical analysis of the professional institutionalisation of CHW in Brazil; and the identification of the paradoxes that such institutionalisation faces: firstly, institutionalisation focused on improving CHW remuneration created difficulties in hiring and paying these professionals; when CHW are incorporated within state bureaucracy they start to lose their autonomy as community agents; and that the effectiveness of CHW programmes depends on the improvement of clinical services in the most deprived areas.

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Introduction

Community health workers (CHW) are frontline workers that serve as links between the communities and specialised health care providers (Nunes & Lotta, 2019; Olaniran et al., 2017; Perry et al., 2014). CHW are responsible for an extensive array of duties (Hartzler et al., 2018). Fundamentally, they are part of how health systems deliver primary care, especially in low- and middle-income countries. Their introduction into health systems has led to broad improvements in health outcomes, including a reduction of malnutrition; reduction in the infant mortality rate; improvements in women's health; and HIV, malaria and tuberculosis control (Perry et al., 2014).

The CHWs programmes optimisation and effectiveness have been the object of several studies (Gopalan et al., 2012; Kok et al., 2017; Lehmann & Sanders, 2007; WHO, 2018). These studies centred on the position CHWs hold within institutional systems, determined by the health system

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structure and by each country's legal framework. As highlighted by Schneider et al. (2016, p. 9) *as the number of initiatives grows, the need for national and local coordination and stewardship becomes more urgent*. Furthermore, they counterpose CHW working conditions, such as the lack of a working rights, incentivization of precariousness and deprivation with the aim of improving health access and provision (Bhatia, 2014; Maes et al., 2018).

Folz and Ali (2018, p. 947) highlight the need for *more studies about how to improve CHW programmes to aid them in functioning to the best of their capacity*. To this extent, we sought to understand the implications of the institutionalisation of the CHW profession. This paper contributes to the literature proposing a framework to analyse the process and consequences of the institutionalisation of CHW profession. We consider these implications through legislative and policy analysis of the institutionalisation process of the CHW profession in Brazil since its introduction in 1991. To do so, we use the frameworks of Kok et al. (2017) and WHO (2018).

The paper makes three original contributions: Firstly, we developed and applied a framework to analyse the institutionalisation process of CHWs which can be replicated amid other cases to facilitate possible comparisons. Secondly, we analysed historically the professional institutionalisation of CHW in Brazil, which is considered a paradigmatic case in this area of study. Thirdly, we consider the paradoxes that expose limits and contradictions that such institutionalisation faces.

Optimising the work of CHWs

CHW programmes began in China with the 'barefoot doctors' programme in the 1920s (Perry et al., 2014). Subsequently, CHWs programmes were linked to *the decolonisation and democratisation movements* (Campbell & Scott, 2011, p. 127) as the dominant western health practices' hegemonic structures were not able to address the needs of the most vulnerable populations in LMICs (Perry et al., 2014). Economic recession and neo-liberal practices have limited the broader implementation of national CHWs programmes (Campbell & Scott, 2011; Perry et al., 2014).

Since the 2000s, however, there has been a growing interest in the action of CHWs, motivated by the *recognition that service needs, particularly in remote and underprivileged communities, are not met by existing health services* (Lehmann & Sanders, 2007, p. 6). This 'second wave' of interest in CHW is also associated with the Millennium Development Goals and has become much more aligned with clinical health activity rather than community organisation (Ballard et al., 2018).

The effectiveness of the role played by CHWs depends on their ability to be the link between formal health services and the community (Barros et al., 2010; Das et al., 2020; Lotta & Marques, 2020). Kok et al. (2017) highlight the mechanisms that result in trusting or distrusting relationships between CHWs, communities and the health system. The authors identified eight distinct mechanisms that may foster a relationship between CHW and the community, such as recruitment and selection and community support; and between CHW and the health system, such as supervision and training. All mechanisms are demonstrated in Figure 1.

The WHO (2018) similarly has provided fifteen recommendations to optimise CHW programmes worldwide. Thus, we synthesised the mechanisms of Kok et al. (2017) and WHO (2018) as the basis of our analysis of CHW institutionalisation in Brazil (Figure 1). In the figure, WHO's (2018) recommendations are numbered from #1 to #15 (how we will refer to them herein).

Several of these mechanisms demand CHW institutionalisation within health systems. As Maes et al. state (2018, p. 1) *as long as CHWs remain unpaid members of the impoverished populations that global health programs aim to serve, they will stay impoverished*, therefore the institutionalisation of CHW is an important to improve health service element to narrow the gender divide that crisscrosses the health workforce (Najafizada et al., 2019). Many CHW have been pushing for institutionalisation globally in order to foster recognition and better working conditions, including Pakistan (Folz & Ali, 2018), South Africa (Hlatshwayo, 2018), India (Bhatia, 2014), Brazil (Nogueira, 2017) and South Asia countries (Public Services International, 2020). In this paper we analyse this process of institutionalisation focusing on the Brazilian CHW case.

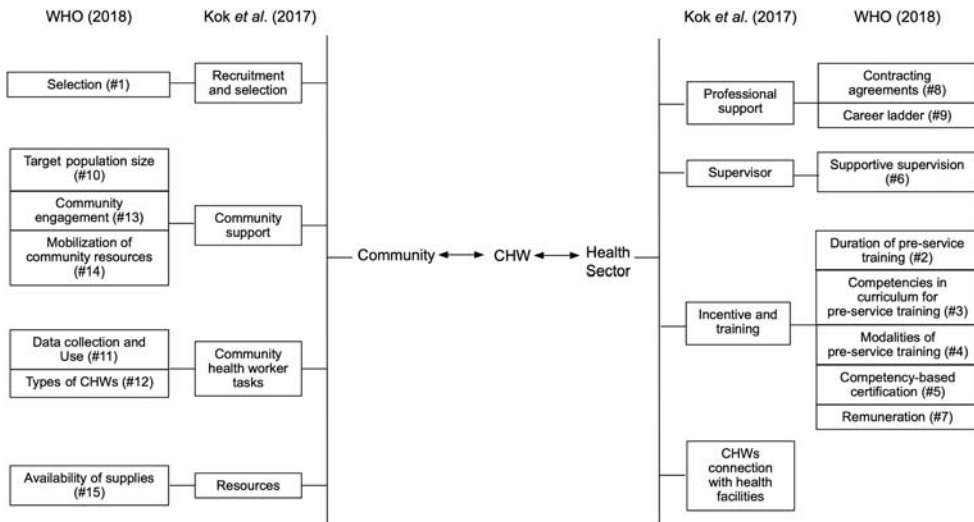


Figure 1. Mechanisms and recommendations that optimise the work of CHW.

Methodology

Brazil is a paradigmatic CHW case that has served as a model or benchmark for other countries (Johnson et al., 2013; Schneider, 2017). Since the onset of its institutionalisation in 1991, CHWs have reached a great level of professional legitimacy – a result of a strong and national mobilisation through the CHW National Confederation (Nogueira, 2017) –, and thus may be pertinent for other countries beginning such a process. We compiled a comprehensive database of legislation from the Brazilian Federal government. To do so, we searched the websites of the Brazilian Congress, of the Health Ministry and other grey literature which describe the Brazilian CHW legislation history (Morosini & Fonseca, 2018; Queirós & Lima, 2012). After this, we completed a timeline of the 18 pieces of legislation and directives that form the institutional background of the CHW profession in Brazil (Figure 2). This dataset comprises four types of documents:

- Constitutional amendments (CA): decisions that change the Federal Constitution, require three-fifths of the votes in two rounds of voting in both Chamber of Deputies and Senate;
- Acts: regulate social and government matters, requiring simple majority in a single voting round in each of the legislative houses and approval from the president;
- Decrees: rule of law usually issued unilaterally by the President;
- Ministerial Directives: regulations or policies defined by federal ministries.

We used MaxQDA, a qualitative analysis software, to code the documents. The main codes were created inductively (Miles et al., 2014) following the mechanisms presented in Figure 1. We created further sub codes deductively, as different themes emerged under the main codes (Appendix 1). After coding, we undertook a second order analysis to recode the data into seven categories, which are presented as our results.

The trajectory of the community health worker profession in Brazil

CHW programmes began in the 1970s, with local experiences in Minas Gerais and in Ceará (Nogueira, 2017). In the Federal Constitution approved in 1988, Brazil proposed the creation of a Public Health System (SUS). The SUS is a universal system which aims to provide free health

	1991	1994	1997	1999	2002	2006	2007
CA						#51	
Acts					#2.507	#11.350	#11.585
Decree				#3.189			
Ministerial directives	National CHW Programme launched with a CHW manual	#692 Family Health Programme	#1886 Preliminary National Primary Care Policy			#648 National Primary Care Policy	

	2010	2012	2013	2014	2015	2016	2017	2018
CA	#63							
Acts				#12.994		#13.342		#13.595 #13.708
Decree					#8.474			
Ministerial directives		#2.488 National Primary Care Policy	#2.761 Popular Education in Health Policy				# 2.436 National Primary Care Policy	#83 Technical nursing training for CHWs

Figure 2. Timeline of the legislation analysed.

care to citizens in the country. The services should be provided by federal, state and municipal governments in a coordinated decentralised governance system.

In 1991, a National Community Health Workers Programme was launched, followed by the Family Health Strategy (FHS) in 1994 (Brazil. Health Ministry, 1994). The FHS reoriented the SUS towards a primary care model, integrating the CHW programme (Lotta, 2015), which is regulated by the Primary Care National Policies directives (Política Nacional de Atenção Básica – PNAB). The FHS takes place inside primary health clinics which provide primary care service, albeit with significant disparities.¹

The Family Health Strategy organises healthcare workers into several teams, notably the Family Health Teams (FHT), comprised of one doctor, nurses and CHWs; and CHW teams, composed by CHWs and one nurse. In 2019 there were 42.605 FHTs and 3.272 CHW teams in the country (Gomes et al., 2020). CHWs care for 200 families within a specific area, visiting them at least once a month, and further support roles in communities and clinics.

Between 1991 and 1999, seven bills were presented to regulate CHW's profession, which advocated for different proposals about minimum education level, parameters of professional qualification and terms of reference (Brazil. Decree No. 3.189, 1999; Nogueira, 2017). After a long period of negotiations between the federal government, Congress and CHWs (Brazil. National Congress, 2003), in 1999 the President introduced national legislation to address employment rights for CHWs and to ensure their remuneration. It also delineated CHWs' functions and determined that they should reside within the catchment area of the communities they represent. The decree also involved more abstract competencies, such as *leadership and spirit of solidarity*.

In 2002, Act #10.507 formally created the profession of CHW, establishing that CHWs must complete basic training, have completed middle school, reside in the area in which they work, be contracted directly by governmental institutions or indirectly by civil society organisations. Concerns regarding the precariousness of CHW's working conditions and meritocracy guiding civil service selection led to the approval of CA 51, prohibiting indirect hiring processes (Brazil. Constitutional Amendment No. 51, 2006). Act #11.350/2006 restricted the CHWs' activities to

the SUS, reducing the scope of the activities (Brazil. Act No. 11.350, 2006). In 2010, CA #63 defined CHWs legal position, guidelines for career ladder, the activities regulation and a minimum wage (Brazil. Constitutional Amendment No. 63, 2010). It also decreed that the Federal Government must confer Federal Complementary Financial Support to state and municipal level so they can pay CHW the minimum wage.

Act #12.994/2014 established R\$ 1.014,00 (around U\$250) to be the minimum wage for CHW, for a 40 h/week workload, and reaffirmed many of the terms found in previous legislation (Brazil, Act. No. 12.994, 2014). Act #13.342/2016 provided salary compensation for hazardous work conditions (Brazil. Act No. 13.342, 2016). In 2018, Act #13.595 made CHW mandatory in the structure of primary health care; health and safety measures must be implemented, including the provision of Personal Protection Equipment; required high school graduation and for CHW to complete 40-hours of technical training and a biannual improvement course (Brazil. Act No. 13.595, 2018). This legislation opened the possibility of changes in the geographical scope of CHW: the number of families attended must be flexible depending on the accessibility of the areas in question and the relative vulnerability of the communities. In 2018, Act #13.708 made three important developments: increasing the CHW minimum wage, with yearly readjustments; and that CHW transport costs must be covered by the hiring governmental institution (Brazil, Act No. 13.708, 2018).

The evolution of these legislations was interspersed with ministerial directives. The most important ones are the Primary Care National Policies and the Popular Education in Health Policy (Brazil. Health Ministry, 1997, 2007, 2012, 2013, 2017b).

Results and discussions

In this section, we present the legislation changes and institutionalisation process according to each category. Compiled changes per legislation can be found in Appendix 2.

Connection with health facilities and supervision

In Brazil, CHWs are part of the SUS (#10507/2002; #11.350/2006) and are embedded in the National Primary Care Policies (PNABs), working within FHTs or CHW teams (Table 1). As Santos and Farias Filho (2016) and Maciazeki-Gomes et al. (2016) report, a weak connection with the FHT means reduced capacity to transfer knowledge from nurses and doctors to the community and vice versa.

Table 1. CHWs team; CHWs teams' supervisor tasks and family health teams in the primary care national policy.

	PNAB 1997	PNAB 2006	PNAB 2012	PNAB 2017
CHWs team	1 supervisor/ 30 CHW	1 supervisor/ 30 CHW	1 supervisor / 4–12 CHWs	did not bring any specific CHW/supervisor ratio
CHWs team's supervisor tasks	16 tasks for supervisors	7 tasks for supervisors	Nurses, in addition to regular tasks, supervise and plan CHWs activities and facilitate their relationship with the health clinic	planning, managing, supervising and evaluating CHWs is one of the activities of regular nurses. No other description is given.
FHT	A physician, a nurse, a nurse assistant and a CHW.	A physician, a nurse, a nurse assistant and a CHW The number of CHW must cover 100% of the registered population, with a maximum of 12 CHW per Team.	A physician, a nurse, a nurse assistant and a CWH The number of CHW must cover 100% of the registered population, with a maximum of 12 CHW per team.	The number of CHW per team 'should be defined according to population, demographic, epidemiological and socioeconomic criteria, according to local definition'

Whilst not legislated federally, CHWs are supervised by nurses that work in health clinics. The tasks of the supervisors also change over time (Table 1), contrasting with WHO guidelines to have *appropriate supervisor-supervisee ratio allowing meaningful and regular support* (WHO, 2018, p. 15). Moreover, ministerial directives restrict the monitoring and evaluation of CHWs to check if they are providing the needed information through the relevant information system.

Nurses tend to move from cooperation to control of CHW supervision, particularly monitoring the number of home visits undertaken (Marinho & Bispo Júnior, 2020; Silva et al., 2014). Such aspects corroborate Kok et al. (2017, p. 1421), who highlight that *reporting systems seemed more geared towards upward accountability (to senior management) than downward accountability (back to the CHWs and communities)*.

The supervisory arrangements are also determined by the evaluation and monitoring tools provided. The national programme for improving access and quality to primary care (PMAQ) is based on pay for performance. Within PMAQ, there is only one indicator specifically related to the action of CHWs: *average of house visits conducted by the CHW by registered family* (Brazil. Health Ministry, 2015, p. 40). Increased bureaucratisation of the CHW tasks over the years, with more and more data required, in practice means less time with the communities and performance measures assessing a single indicator (the number of houses visited) (Lotta, 2015; Nogueira, 2019; Saddi et al., 2018). Hence, the evaluation mechanisms *redirect CHW practises to quantifiable activities to the detriment of community mobility* (Marinho & Bispo Júnior, 2020).

PNAB 1997 allowed CHW to develop activities within the health clinic (as opposed to only in the community), if such activities directly related to CHWs tasks. Current legislation (#13595/2018) establishes that CHW can use 10 hours/week for planning, evaluation, data registration and training, undertaken within the health clinic. The perceived risk of their presence within local clinics is that CHW may be tasked with activities beyond their job description including cleaning, managing resources and equipment and receiving patients (Marinho & Bispo Júnior, 2020).

Recruitment and selection

The requirement that CHW live in the same area as where they work (Decree #3189/1999) opened space for a legal conflict when it was stipulated that CHW could only be directly hired, as it was contrary to the constitutional principle of equality which could not discriminate against candidates based on where they lived. This was amended through CA #51, determining that CHW selection processes should be selected according to the territory (#11.350/2006).

Changes to institutionalised selection processes meant that the community was no longer involved in CHW recruitment. That is, those previously selected according to their position within communities were instead selected through public tender (Lotta, 2015; Queirós & Lima, 2012), which fails to align with the recommendations from Kok et al. (2017) and WHO (2018) as it lacks community involvement.

In 2002 and 2006 (#10507 and #11350) legislation only required middle school education for CHW, but in 2018 (#13.595) high school graduation became a basic requirement. This changed the profile of the CHW: while in 2002 18.2% of them had completed high school, in 2015 this number had increased to 70.97% and 12.71% had completed higher education (Morosini & Fonseca, 2018). In practice, the competences CHW must have are established by the hiring institutions, that also make use of interviews as a part of the selection process (Junqueira et al., 2010; Simas & Pinto, 2017), leading to a more diverse profile (Lotta, 2015).

Training

In 1997 (PNAB), CHWs training was a responsibility of the supervisor and its content related to the needs of the territory in which they practised. In 2002 (#10.507), a basic qualification course was required for CHWs, latterly extended in 2006 (#11.350) to include continuous education. The

first national coordinated training for CHWs started in 2004 with the creation of a 1200-hour programme, comprising 3 modules. Subsidised by the Federal Government, 70% of CHWs had completed the first module (400 hours) by the time the training was discontinued in 2008.

From 2018 (#13.595) CHW were required to complete a basic 40-hour training and engage in biannual continued updates, which could be face-to-face or a hybrid model. These biannual courses (#13.708) were to be organised and financed between the Federal, State and Municipal governments. Furthermore, in 2018 nursing technical courses were offered to 250.000 CHW (Brazil. Health Ministry, 2018). In October 2020, to celebrate the 'CHWs day' (Brazil, Act No. 11.585, 2007), the Federal Government announced that in 2021 an online technical course would be offered to every CHW, but no further information was provided.

Training is challenged by resource scarcity. For instance, the local managers played a pivotal role in the cessation of the 1200-hour course, as they could not afford this investment and that greater educational skills could mean higher salaries for CHW, jeopardising their adherence to the Fiscal Responsibility Act² (Melo et al., 2015). Thus, different levels of government and health clinics had discretion in delivering training. However, this discretion resulted in variability in the prioritisation of short courses driven by specific demands, and in a large number of CHW not receiving any training (Lotta, 2015; Morosini & Fonseca, 2018; Nunes & Lotta, 2019).

More recently, legislation has established that training must be based on the Popular Education in Health Policy, which has as guiding principles: *dialogue; affection; problem solving; shared knowledge construction; emancipation and; commitment to the construction of the democratic and people's project* (Brazil. Health Ministry, 2013). Whilst this appeals to the community role of CHW, communities increasingly demand biomedical procedures (Maciazeki-Gomes et al., 2016) and some clinical diagnosis have been included as CHWs tasks. For this reason, in practice training has become increasingly clinical. Morosini and Fonseca (2018) and Nogueira and Barbosa (2018) see this increased clinical and biomedical demand as a threat to the primary care system.

Employment processes and benefits

CHWs in Brazil have been through several institutional improvements in employment practices including hiring, remuneration and incentives, going beyond the recommendations from Kok et al. (2017) and WHO (2018).

Historical practices of indirect hiring led to precarious working conditions. In 2006, CA #51 established that CHW could only be directly hired by the State, Municipal or the Federal system, which implied that such costs with personnel would be taken into consideration by the Fiscal Responsibility Act, limiting government payroll expenditure. Under #11.350, employment must respect the consolidated labour laws, unless hiring institutions provide a special CHW career regime. It emphasised that CHW could only be temporarily or indirectly hired in case of epidemic outbreaks.

While the CHW direct hiring meant the improvement of the profession (Morosini & Fonseca, 2018), it also meant a financial burden for hiring agents. As contracting non-profit organisations to provide services within the SUS does not fall under the same budget line, indirect hiring has been a well-accepted work-around to be able to fulfil capacity needs creatively. Thus, the National Council of Municipal Health Departments advocated for the continuation of indirect hiring, which demonstrates that although legally established, direct hiring continues to be a matter under discussion (Castro et al., 2017; Queirós & Lima, 2012). Despite this, data from 2014 demonstrated that 77.1% of CHW are directly hired (Simas & Pinto, 2017).

In 2010 (CA #63), a CHW minimum wage was set and the Federal Government should provide hiring institutions with a Complementary Financial Support to afford such expenditure. The Federal government already provided complementary financial support (PNAB 2006), but as there was no CHW minimum wage policy, the resource did not necessarily reach these professionals. Data

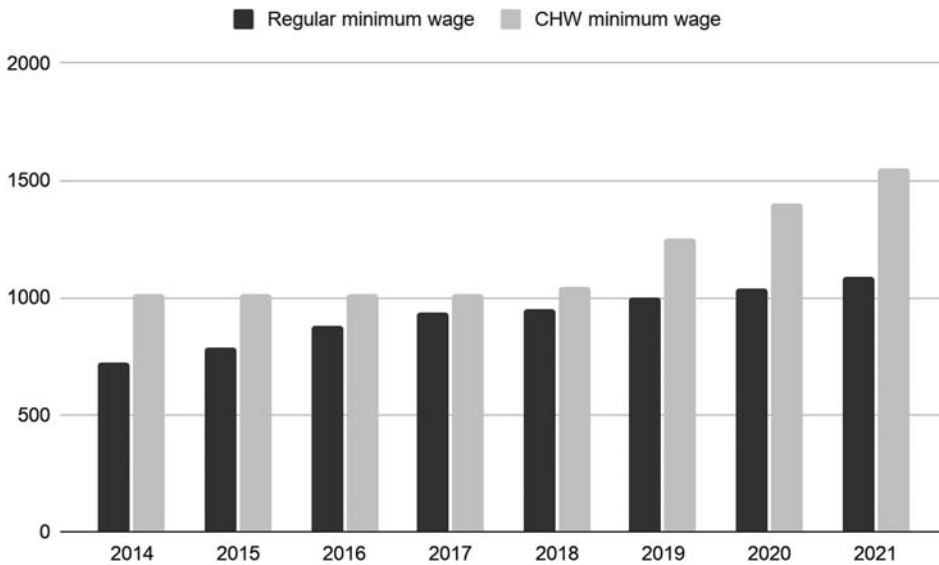


Figure 3. Regular minimum wage and CHW minimum wage – 2014 to 2021.

from 2014 demonstrated that 15.8% of CHWs in Brazil earned less than regular minimum wage (which is also lower than CHW minimum wage) (Simas & Pinto, 2017).

In 2014 (#12.994) direct hiring was reinforced, as Federal complementary financial support – corresponding to 95% of the minimum wage – would only be provided to CHW if directly hired. Furthermore, the minimum wage was required to be readjusted annually (#13.708). **Figure 3** demonstrates the variations of CHW minimum wage in comparison to regular minimum wage.

The establishment of a minimum wage worsened the burden of hiring institutions, as it increased payroll duties, and not every municipality was able to absorb this load. In 2016 (#13.342) CHW received a 30% additional payment as hazard exposure compensation and a pension right. These incentives improved the CHW working conditions (Morosini & Fonseca, 2018), but consequently increased difficulties for hiring. The approval and sanctioning of Act #13.342 and of Act #13.708 demonstrate the political strength of CHW but also highlight the difficulties faced in its implementation, particularly given CA #95/2016 had frozen federal, state and municipal budgets for 20 years as an austerity measure (Morosini & Fonseca, 2018).

Discussions about incentives, especially in relation to hazard exposure compensation, have become even more frequent during Covid-19 pandemic, as these professionals are frontline workers during epidemics (Nunes, 2020).

Community support and target population size

Since 1997, the catchment area for CHW comprises 750 people (PNAB 1997, 2006 and 2012). This was altered in 2018 (#13.595), to allow population size to be dependent on demographic and geographic conditions.

As mentioned, CHW are required to live in the same catchment area they are responsible for, but these residency requirements for CHW remains an issue (Queirós & Lima, 2012). In 1997, the PNAB established that CHW who no longer lived in their service area would be dismissed and that these dismissals were under the control of local or municipal health councils but employment protections regarding CHW residency were not extended until 2018. Studies have demonstrated that territorial violence, mainly related to organised crime, significantly affects CHWs (Alonso et al., 2018; Bellas et al., 2019). Thus, updates in 2018 (#13.595) permitted CHW to be relocated if their life was in

danger. The same legislation ensured that if a CHW bought a house outside the catchment area, he/she could be resettled to their new area, although not mandatory.

CHW are required to identify community partners and local resources to support environmental management (for vector control) and intersectoral actions, including the organisation of educational activities and community task forces for health promotion. Moreover, CHW should also encourage and facilitate community engagement in planning, monitoring and evaluating local health policies. Nonetheless, the pay for performance system has led CHW to concentrate on measurable activities (i.e. house visits), rather than community mobilisation (Marinho & Bispo Júnior, 2020), not fully addressing WHO's (2018) recommendation.

In general, the communities are engaged with these health policy requirements through participatory local councils (#8.142), but there are no explicit requirements for monitoring CHWs in this legislation. Hence, the institutionalisation of the CHW profession did not address Kok et al.'s (2017) and WHO's (2018) recommendations for engaging the community in the monitoring of CHWs and providing feedback and complaints.

Resources

In Brazil CHWs main activities do not involve curative procedures (which are restricted to nurses and physicians). Thus, the lack of curative supplies does not directly affect the performance of CHW and home visits can be made with few resources. When the CHW national programme was launched the Federal Health Minister bought 20,000 bicycles, 20,000 shoes, and 20,000 umbrellas for CHW in the northeast. In 2018 legislation defined that the hiring institution should provide CHWs with PPE (#13.595) and transportation (#13.708). No other detail about clinical or physical resources is provided in federal legislation.

Many CHWs complain about the burden of record keeping and administration to update the information systems after they have visited the families, and problems with such systems not working properly, demanding rework (Barreto et al., 2018; Jatobá et al., 2020; Lopes et al., 2018; Nogueira, 2019). In recent years, the Federal Government has developed online information systems, but the acquisition of tablets or other gadgets is dependent upon the hiring institutions. Moreover, as CHW are integrated with the overall health system, following the WHO's (2018) recommendation, CHWs use the resources from the health clinics they are attached to, which, as mentioned, can be quite varied.

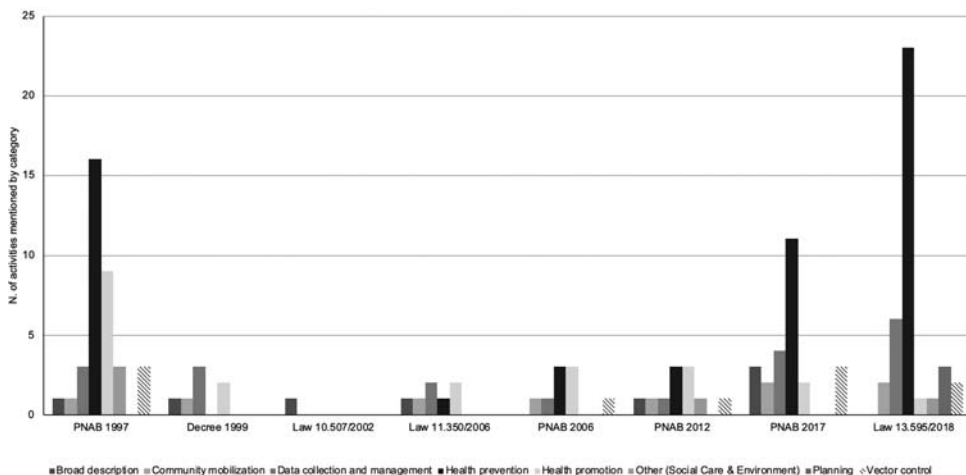


Figure 4. Changes in the CHW tasks according to legislation.

Tasks

CHWs tasks can be allocated within seven categories: (a) Community mobilisation; (b) Data collection and management; (c) Health prevention; (d) Health promotion; (e) Planning; (f) Vector control; (g) Social care and environment related activities. In addition, it is common to see ambiguous descriptions of CHW tasks (i.e. ‘other activities pertinent to the CHW role’) (Figure 4).

In 2018, planning activities were included in CHW tasks, and data collection and management activities have increased. Data collection includes demographic and socio-cultural diagnosis and information obtained from home visits about the families, as well as informing any relevant epidemiological situation to the health unit. In 2018 it was established that data management activities involved analysing data and presenting them to the communities.

In recent CHW legislation there was an apparent decrease in health promotion tasks, which are now covered by the Popular Education in Health Policy (#2.761/2013). Prevention activities are outlined according to the most vulnerable groups (#13.595) – such as drug users, children, elderly, people with mental disorders – with the intention of identifying and monitoring specific health conditions. They involve tasks such as pressure measurement, measurement of capillary blood glucose, measurement of axillary temperature, support for the correct administration of medication and anthropometric verification. These can only be conducted by CHW which have completed the relevant technical courses and when assisted by clinically trained team members.

Overall analysis of CHW institutionalisation in Brazil

In this section we develop an overall analysis of the institutionalisation process of CHW in Brazil, utilising the recommendations of WHO (2018) and Kok et al. (2017) – presented in Figure 1 – as background.

From the analysis of the results above, the institutionalisation improved the CHW working conditions through contracting agreements (WHO’s recommendation #8); remuneration (#7) and incentives (#9). Yet, supervision has focused more on controlling CHW within a pay for performance mechanism, which seems far from the best practice of ‘supportive supervision’ (#6). Furthermore, institutionalisation has not standardised training: the lack of a federal managed programme has diminished the standardisation of these professionals’ capacities, demonstrating that CHW programmes in Brazil remain with diverse approaches to training (#2, #3, #4 and #5), and thus CHW have not experienced professional recognition by others (Kok et al., 2017; Melo et al., 2015; Modesto et al., 2012) and this has had a direct impact when CHWs make resource allocation decisions (Nunes & Lotta, 2019).

This diverse approach to training also reflects increasing clinicalisation of the profession of CHW in Brazil, which in turn affects the availability of supplies for these professionals (#15). This creates a fundamental conflict in the very nature of primary health care and the role of CHW, as well as increasing the tensions that permeate the institutionalisation of CHW profession alongside other health professions (especially nursing). There is a discussion of having different ‘types of CHWs’ (#12), however, this might lead to greater competition with other healthcare professionals.

Despite addressing most of ‘selection’ recommendations (#1), the public service selection process for CHW has diminished community involvement, jeopardising the recommendation of ‘community engagement’ (#13). Community engagement as well as the ‘mobilization of community resources’ (#14) are also jeopardised by the existing pay per performance system, based on a single indicator and the bureaucracy of data collection. In this sense, Brazil partially meets the recommendation for ‘data collection and use’ (#11), as data is collected, but there is no system to organise and disseminate it to the communities.

Final considerations

Since 1991, the profession of CHW in Brazil has undergone an intense institutionalisation process. By taking into consideration the best practices identified by Kok et al. (2017) and the WHO (2018),

in this paper we analysed how institutionalisation has integrated CHW practices in Brazil, as well as the implications of this institutionalisation process.

Three paradoxes emerged from our analysis. The first was that the institutionalisation focused on improving CHW remuneration and benefits, but ultimately led to difficulties in hiring and paying these professionals. Whilst the federal government has sought to absorb these costs, we do not yet have empirical research to see if this has assuaged this challenge.

Secondly, when CHW are incorporated within state bureaucracy, they start losing their autonomy as community agents, significantly departing from their original mandate. The pay per performance system compounds community detachment, as well as the absence of the community in the CHW recruitment processes. Nonetheless, integrating within state bureaucracy brings these professionals benefits, as it enables their access to power and authority to foster behavioural changes in the communities (Nunes & Lotta, 2019).

Third, the SUS, despite being universal, is generally used by the most impoverished and vulnerable populations. Thus, CHW have become associated with the poor (Nunes, 2020), for whom CHW have to promote popular education on health and connect communities to health facilities and clinical health professionals. Hence, *the precariousness of the work of the CHW is also related to the fragility of the health system* (Alonso et al., 2018, p. 6) and the effectiveness of CHW programmes depend on the improvement of clinical service in the most deprived areas (Lotta et al., 2020).

In Brazil, the institutionalisation of CHWs' profession was an important process allowing greater employment security and worker's rights to these professionals, addressing Bhatia's (2014) and Maes et al.'s (2018) hopes to reduce precariousness. Nonetheless, in order to make CHWs' work more effective, the connection they hold with the community and with the health system must be improved (Lotta & Marques, 2020). As such, the institutionalisation of the CHW between these two domains of the community and the health system creates paradoxes that must be taken into consideration when developing CHW programmes.

By observing the Brazilian case of CHW professional institutionalisation, this paper makes three contributions to the literature. Firstly, we have developed and applied a framework for how to easily analyse this process of institutionalisation and its associated consequences. The same framework can be applied to other cases of CHW or even other health professions, enabling a meaningful comparative analysis. Secondly, as the Brazilian CHW case is seen as a paradigmatic reference for the world in this area of community health engagement, detailing this process may be of benefit for others in developing or evaluating their own CHW programmes. This is the first analysis that has historically observed how institutionalisation was developed in Brazil which may inspire other experiences and the literature. Finally, the analysis contributes to the literature by demonstrating how the process of institutionalisation of the CHW workforce has many paradoxes and consequences for the delivery of healthcare within communities.

Notes

1. Data self-reported by 24,055 primary healthcare clinics demonstrates that, for instance, 25% of these clinics do not have bathrooms in use conditions, 30% do not have a computer and 50% do not have internet access (Brazil. Health Ministry, 2017a).
2. The Fiscal Responsibility Act (Act #101/2000) limits total spending on personnel, at each level of government, to 54% of Net Current Revenue (Cruz & Afonso, 2018).

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Appendices

Appendix 1. Analytical codes and subcodes

Relationship between CHWs and the Health System		Relationship between CHWs and communities	
Codes and subcodes	# of extracts	Codes and subcodes	# of extracts
CHWs connection with health facilities	9	Resources	3
Primary Care Strategy	1	Transportation	2
CHWs strategy	5	Individual Protection	1
Family Health Teams	6	Equipment	
Incentives and training	0	Community Health Worker Tasks	9
Salary	23	Community mobilisation	10
Contracting System	11	Data collection and management	23
Training	19	Health prevention	43
Incentives	14	Health promotion	25
		Planning	3
		Vector control	10
		Social care and environment related activities	5
Supervision	5	Community support	4
Monitoring systems	4	CHW relocation	4
Supervisors tasks	7	Catchment area	7
Professional support	0	Recruitment and Selection	12



Appendix 2. Analytical categories per legislation

CONNECTION WITH HEALTH FACILITIES AND SUPERVISION							
PNAB 1997	ACT 10.507/2002	ACT 11.350/2006	PNAB 2006	PNAB 2012	PNAB 2017	ACT 13.595/2018	ACT 13.708/2018
Does not allow CHW to develop any activity within the structure of the Health Facility he/she is attached to. CHW Programme: 1 supervisor/ 30 CHW, with specific tasks for supervisors	CHW are exclusively attached to the Unified Health System	CHW are exclusively attached to the Unified Health System	CHW Programme: 1 supervisor/ 30 CHW, with specific tasks for supervisors	CHW Programme: 1 supervisor / 4-12 CHWs. The nurses that work as supervisors are also responsible for planning activities and facilitating their relationship with the health unity facilities.	CHW Programme: does not bring any specific CHW/supervisor ratio. CHW can use 10 h / weekly to activities as planning, evaluation, data register and training, which can be delivered within the health facility CHWs activities include participating in the planning process of the Health Unit, in articulation with the Family Health Teams.	The presence of CHW is mandatory in the primary care health structure. CHW can use 10 h / weekly to activities as planning, evaluation, data register and training, which can be delivered within the health facility CHWs activities include participating in the planning process of the Health Unit, in articulation with the Family Health Teams.	It is mandatory to have CHW in Family Health Teams
RECRUITMENT AND SELECTION							
DECREE 1999	ACT 10.507/2002		CA 51			ACT 11.350/2006	ACT 13.595/2018
Territorial base	Territorial base & Middle school	CHW will be selected through public selection processes that obey the principles of legality, impersonality, morality, publicity and efficiency				Territorial base & Middle school	Territorial base & High school
TRAINING							
PNAB 1997	ACT 10.507/2002	ACT 11.350/2006		ACT 13.595/2018			ACT 13.708/2018
Responsibility of the supervisor	Basic qualification course	Introductory training & continued education	Basic 40hour training & biannual continued education trainings. Technical courses that could be delivered face-to-face or hybrid				biannual courses will be organised and paid in a 'tripartite' form, by the Federal, State and Municipal governments

EMPLOYMENT PROCESSES AND BENEFITS

DECREE 1999	CA 51	ACT 11.350/ 2006	CA 63	ACT 12.994/2014	ACT 13.342/ 2016	ACT 13.708/2018
CHW should be remunerated and could be directly or indirectly hired	CHW could only be directly hired, and that such cost would be taken into consideration for the Fiscal Responsibility Act	CHW must be hired under the regular consolidated labour laws, unless state and municipal legislations have special career regime	A minimum wage was determined. Federal Government was entitled to grant state and municipal levels with a Complementary Financial Support for such minimum wage Federal Law must provide guidelines for CHW career ladder	Federal complementary financial support – corresponding to 95% of the minimum wage – would only be provided to CHW directly hired. Minimum wage defined as R\$ 1.014 The career ladder should be an option of the hiring government level, and that, if a career ladder would be stipulated, it should take into consideration certain guidelines	Hiring agents should provide CHW additional payments for unhealthy working conditions. CHW right to pension is recognised, but only for the months the pension taxes were paid	CWH minimum wage must be readjusted yearly. 2018 MW: R\$ 1250 / 2019 MW: R\$ 1400 / 2021 MW: R\$ 1550

COMMUNITY SUPPORT AND TARGET POPULATION SIZE

PNAB 1997	PNAB 2006	PNAB 2012	ACT 13.595/2018
Catchment area comprises 750 people CHW that no longer reside in the catchment area, that were not fulfilling their function or working hours, or that were causing conflicts within the community could be fired/dismissed. In case of an impasse about the dismissal of CHW, this decision would be taken by the local or municipal participatory health council	Catchment area comprises 750 people	Catchment area comprises 750 people	the population size would be defined by the hiring agent, that should follow the parameters established by Health Ministry, which must take into consideration demographic and geographic conditions, distinguishing rural and urban areas The catchment area can be reassigned when CHW or his/her family are facing life risk within the territory. In case the CHW buys a house outside the catchment area, he/she can be resettled to the area of the house, but he/she can also remain in the same area/team

RESOURCES

Act 13.595/2018	Act 13.708/2018
Hiring institution should reimburse CHWs' expenditure with transport	Hiring institution should provide CHW with transport and PPE



TASKS

	PNAB 2006	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
PNAB 1997	Act 11.350/2006	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
Provide the families with endemic diseases protection guidelines. Detailed health promotion and prevention tasks, focusing on the health of children, mothers, the elderly and the disabled. Encourage community participation in actions improving community life. Environmental, social insertion of disabled people and human rights education. Register the families and collect data on the socio-economic profile, including sanitation and environmental issues.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
Less detailed health promotion activities. Health prevention activities were not included. CHWs must Engage in and promote actions that strengthen the links between the health sector and other public policies that increase the quality of life of the community. Community mobilisation and data collection tasks remained similar.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
It provided that The profession of Community Health Agent is characterised by the activity of disease prevention and health promotion, through home or community actions, individual or collective, developed in accordance with SUS guidelines and under the supervision of the local manager'.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
It added the following tasks: promotion of health activities; participation in actions that strengthen the links between health sector and other policies; fostering community participation; conducting periodic home visits to monitor risk situations; demographic and sociocultural data collection.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
Health promotion focused on the home visits; risk situations being reported to the health clinic. Malaria and dengue control and prevention activities. Guide the families to access health services and develop actions to integrate health teams and community. Data collection restrained to registering the families and updating information.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
It added to PNAB 2006 the activities of monitoring social programmes; leishmaniasis control and education activities; home visits should be planned jointly by the family health teams. Families with worse living conditions should be visited once a month.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
Focus on the health care in the territory and prioritise population with a high degree of social vulnerability and epidemiological risk	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
It increased the number of health prevention tasks, including measuring blood pressure, capillary blood glucose and axillary temperature; wound cleansing; and guidance for correct medication. It broadened disease control to any disease with epidemiological relevance. Identify community partners to conduct education, sports and social care actions to improve community quality of life. Data collection activities include a full community diagnosis, involving demographic, social, cultural, environmental, epidemiological and sanitarian data, in addition to registering the served families.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018
Prevention activities are described according the most vulnerable groups, with the intention of identifying and monitoring any specific health condition, and maintained the prevention tasks established in PNAB 2017, considering that these must be conducted by CHW that completed technical course. Health promotion activities are described in relation to the 'Popular Education in Health Policy'. In partnership with the Social Care System, CHW must monitor the conditionalities of social programmes. Data collection includes a sociocultural and demographic diagnosis, details of home visits, participation in institutional planning, data consolidation and activities to share this info with the community. For the first time, planning activities are described as CHWs tasks.	Act 10.507/2002	PNAB 2012	Decree 8.474/2015	PNAB 2017	Act 13.595/2018