



Master of Public Health

Master international de Santé Publique

Knowledge, Attitudes and Practices (KAP) Study to investigate the Health System of Circonscription Socio-Sanitaire (CSS) Ignié Ngabé, Department of Pool, Republic of Congo



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Summary

Background: It is important to understand a population's health behaviours and their underlying determinants such as knowledge, attitudes and beliefs related to health, when we seek to deliver appropriate health care services that may increase health service utilization and ultimately population health. Access and utilization of health services is difficult to define, being a multi dimensional process that in addition to the quality of care, involves geographical and financial accessibility, availability of the right type of care for those who need it and acceptability of services. The potential contribution of knowledge, attitudes and practices (KAP) studies to increasing health access, utilisation and population health has not received much attention in African countries, including the Republic of Congo.

Methods: A descriptive population based cross sectional KAP study using a 2 stage cluster methodology was undertaken in the districts of Ignié Ngabé, Department of Pool, the Republic of Congo in April 2011. A structured questionnaire dealing with health topics was administered face to face with 203 adults (over 18), in 29 villages selected by Probability Proportional to Size (PPS) sampling who had lived in Ignié Ngabé for over 1 year.

Results: Geographic accessibility was found to be the biggest barrier to use of the CSI of Ignié Ngabé, and to a lesser extent financial accessibility. Lack of community involvement and lack of medical materials were other major issues that may hamper the use of the CSIs by the population.

Conclusion: Despite cultural acceptability and overall approval of public health services in Ignié Ngabé, low frequentation of health centers remains as an issue that must be addressed, in part by improved health care and availability of medical materials, community involvement, provision of information and improved access to health services by remote communities, if the health of the population of Ignié Ngabé is to be improved.

Key words: Accessibility, Frequentation, Health Care, KAP study, Ignié Ngabé / The Republic of Congo.

Summary in French

Contexte: La qualité des services délivrés par les centres de santé est un objectif recherché par les programmes de renforcement des systèmes de santé. Pour cela il est important de comprendre les comportements liés à la santé d'une population, par l'étude de leurs connaissances, attitudes et pratiques (CAP) vis-à-vis de la santé. Cela permettrait d'augmenter la fréquentation des Centres de Santé Intégrés (CSI) et ainsi d'améliorer la santé de la population. Les résultats d'une étude CAP (Connaissances, Attitudes et Pratiques) pourrait permettre d'accroître l'accès aux soins de la population. L'accès et l'utilisation des services de santé est difficile à définir, étant un processus multidimensionnel qui, en plus de la qualité des soins, implique l'accessibilité géographique et financière, la disponibilité et l'acceptabilité des services par la population.

Méthodes: Nous avons réalisé une enquête descriptive, prospective, transversale de type CAP mise en œuvre dans les districts d'Ignié Ngabé, département du Pool, de la République du Congo en avril 2011. Un questionnaire portant sur la thématique de la santé a été mené auprès de 203 adultes (de plus de 18 ans),

dans 29 villages sélectionnés par 'Probability Proportional to Size (PPS) sampling' qui ont vécu ou vivent dans le district d'Ignié Ngabe pendant plus d'un an.

Résultats: Le plus grand obstacle à l'utilisation du CSI de Ignié Ngabe s'est révélé être l'accessibilité géographique, et dans une moindre mesure l'accessibilité financière. Le manque de participation communautaire et le manque de matériel médical ont été d'autres paramètres importants pouvant entraver la fréquentation CSI par la population.

Conclusion: Malgré l'acceptabilité culturelle et l'approbation générale des services de santé publique dans Ignié Ngabe, la fréquentation des CSI reste faible. Pour que la santé de la population de Ignié Ngabe puisse être améliorée, les points d'amélioration à apporter seraient la qualité des soins, la disponibilité du matériel médical, une participation plus active du Comité de Santé (COSA) et enfin un meilleur accès aux services de santé pour les collectivités éloignées.

Mots clés: Accessibilité, fréquentation et accès aux soins, les soins de santé, étude CAP, Ignié Ngabe / La République du Congo.

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Abbreviations

AFD	Agence Française de Développement
AIDS	Acquired immune deficiency syndrome
CFA	Central Africa CFA franc
CFCO	Chemin de Fer Congo Océan (railway)
CFI	Contribution Financière Initiale
CHW	Community Health Worker
COMEG	Congolaise des Médicaments Essentiels Génériques
COSA	Comités de Santé (Health Committee)
CSI	Centres de Santé Intégré (Health Center)
CR	Red Cross

CRC	Congolese Red Cross
FRC	French Red Cross
CSS	Circonscription Socio-Sanitaire
DDS	Direction départementale de la santé
DDSP	Direction départementale de la santé du Pool
DEFF	Design effect
DRC	Democratic Republic of Congo
EDSC-I	Enquête démographique et de santé
HIV	Human immunodeficiency virus
IEC	Information, Education and Communication
KAP	Knowledge, Attitudes and Practices
LMIC	Low and Middle Income Countries
MDG	Millenium Development Goals (Objectifs du Millénaire pour le Développement)
MSP	Ministre de la santé et de la population
NGO	Non Governmental Organization
NHIS	National Health Information System
PDSS	Programme de développement du système de santé
PMA	Paquet minimum d'activité (Minimum Packet of Activities)
PMAE	Paquet minimum d'activité élargi (Enlarged Minimum Packet of Activities)
PNDS	Plan National de Développement Socio-Sanitaire (National Health Plan)
PPP	Purchasing power parity
PPS	Probability proportional to size sampling
PSUs	Primary sampling units
SES	Socio Economic Status
SNIS	Système d'information sanitaire
WHO	World Health Organisation

1 Context and Justification

1.1 Introduction

It has long been noted that the knowledge of the factors involved in the utilization of health services is a complex question but a cause for concern for health authorities and a subject of controversy among research workers that needs to be clarified. In the study of the interaction of health services and their users a multidisciplinary approach permits the identification of medical, demographic, ecological and socioeconomic determinants as well as organization and management factors, all being essential elements in the planning, management and evaluation of health services [1]. Access and utilization of health services is difficult to define. Is a multi dimensional process that in addition to the quality of care, involves geographical accessibility, financial accessibility, availability of the right type of care for those who need it; and acceptability of the service [2].

In terms of geographic accessibility ('the travel time or physical distance from the user to the service delivery point'), it is generally agreed that geographic access is an important part of accessing health care in Low and Middle Income Countries (LMIC) [2]. Geographic accessibility may be an important barrier of access for health services [3]. An inverse relationship between distance and travel time to health facilities and use of health services has been demonstrated as an important barrier to access [4]. Good roads, often uncommon in developing countries are required, not only for people and staff to go from their homes to health facilities but also for the easy distribution of drugs and other supplies to health facilities, for referrals in emergencies in a timely fashion and for better supervision of health workers. Communication of health services can also be limited by geographic distance, which in term may limit health service access and utilization. For remote villages, more time and money is spent on travelling related costs, all of which act as potential obstacles to obtaining care. Not to mention adverse weather conditions which at certain times of the years, mean that roads (both paved and unpaved) are impassable [2]. See appendix for images of difficult road conditions in Ignié Ngabé.

In terms of financial accessibility ('the relationship between the price of services and the willingness and ability of users to pay for those service, as well as be protected from the economic consequences of health costs') [2] there is more contradictory evidence, and questions relating to the financing mechanisms for health services has been one of the most controversial topics concerning access to health services in developing countries. User fees; in particular, have been a contentious source of financing of public services in low-income country settings [5], since they were recommended by the Bamako Initiative in 1987. Usually they have occurred as a result of the scarcity of public financing (or the government's inability to allocate adequate financing to its health system), low salaries of health workers, the prominence of the supply of essential health care via the public system and the lack of medical supplies such as drugs [2]. A number of Western governments and international NGOs are calling for the abolition of user fees [5][6], whereas other organizations, such as the World Bank have recently avoided taking a "blanket policy" against them in the absence of compelling arguments for a particular country, mainly because governments in many developing countries, including the Republic of Congo continue to use them as a main source of funding for their health system. Early user fee studies found that income, price and quality were not

significant determinants of demand for health services and that individuals had a high willingness and ability to pay for these services [7], although later it became clearer that utilization often does vary by price and cost [8]. As noted above, the evidence is contradictory. It has been reported that where user fees have been associated with improvements in the quality of care, utilization of services has actually increased [9] with some notable cases in Africa, but not in all situations [10]. However it has also been noted that with the introduction of user fees or increases in prices reduced utilization has resulted [11]. In addition the abolition of user fees has been seen, in some situations to increase the use of curative, preventative and promotive health services in for example in Uganda [12] but fears about irrational use of health services persist, and in some situations are probably legitimate concerns. Regardless of this highly continuous issue, it is agreed that all countries are different and to remove or keep user fees must be treated cautiously [6]. It should be noted the user fees are just one part of the picture when considering financial accessibility to health services. Besides the direct costs there are also the indirect costs i.e. the opportunity costs of time of both the patient and those accompanying him or her, transportation costs, and expenses of food and lodging.

In terms of availability ('having the right type of care available to those who need it; such as hours of operation, and waiting times that meet the demands of those who would use care, as well as having the appropriate system of service providers and materials') many issues have been noted [2]. Common problems are limited hours, long waiting times, absentee health workers and lack of drug stocks and laboratory services at public clinics in many parts of the developing world [13]. For these reasons, many people are so ready to practice auto medication and to use informally trained health providers and shop keepers. Auto medication with medicines bought in the street or local shops (see image in appendix) also offer the advantage of being more likely to sell an incomplete course of medicines, which will be appreciated when cash is short.

In terms of acceptability ('the match between how responsive health service providers are to the social and cultural expectations of the individual users and communities') [2], regardless of the Declaration of Alma Alta which proposed that primary health care needed to be in line with cultural norms, this may not always be the case in practice. In most pluralistic medical systems, it is expected that patients will consult different types of service providers some of who are trained in western medicine others who practice traditional medicine, other who are shop keepers or informally trained providers. Patients are found to have different expectations from different providers, which in part explains whom they will consult [14]. Even though there are relatively few studies from developing countries, it is likely that measurement of acceptability of health services may be variable and dependant on local contexts.

In addition it is generally agreed that health is a key factor in the development of a country. Improving the health status of populations is a factor of endogenous growth and economic development [15]. This is why the population should have access to quality health care, delivered by qualified and trained to be able to meet their needs.

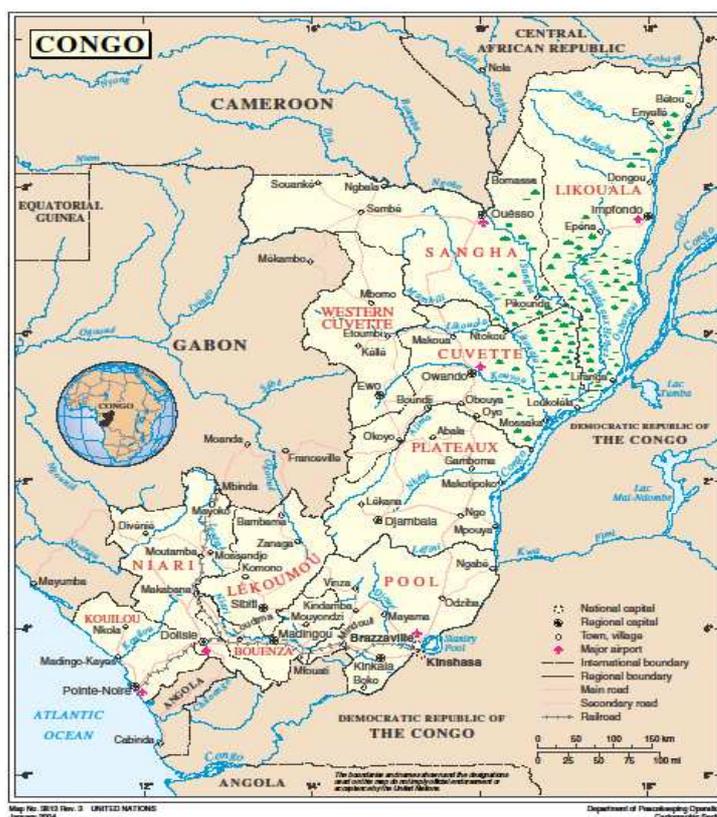
It has been long shown in the public health literature that it is important to understand a population's health behaviours, as well as their underlying determinants such as knowledge, attitudes and beliefs related to health, when we seek to deliver appropriate health care services.

1.2 Country Context

1.2.1 Demographic and Social Context

With a population estimated at 3,551,500 inhabitants as of 1 January 2005 (Estimation du Centre National de la statistique et des études économiques (CNSEE) 2005) for a surface area of 342,000 square kilometers, the Republic of Congo is one of the least populated sub-Saharan African countries with an average population density of 10 inhabitants per km². The population is young with 50% aged less than 18 years old, 44% under 15 years of age and 18% under 5 years age. 51% of the population are women. The population is unevenly distributed throughout the territory, with approximately 82% of the population living in the four provinces crossed by the Chemin de Fer Congo Océan (CFCO) railway and 58% living in the major cities of Brazzaville (capital city), Pointe Noire (commercial capital city) and Dolisie.

Figure 1 Map of the Republic of Congo (<http://www.un.org/Depts/Cartographic/map/profile/congo.pdf>).



Women of reproductive age represent 20% of the population. With a fertility rate of 6.3 children per woman of child bearing age and a high birth rate (44 per 1000), the annual natural population growth rate is estimated between 3.2% and 3.4% per year [16].

The infant mortality rate declined from 81 deaths per thousand in 1996 to 75 deaths per thousand in 2005. Mortality before the 5th birthday is 117 per 1000 live births. Life expectancy at birth was estimated at 51.9 years in 2005 [16].

School attendance, characterized by a considerable drop in gross primary school enrollment in the 90s has improved steadily from 83% in 2002 to 89% in 2005. Illiteracy rates are 17% for men and 33% for women over 15 years of age [15].

In the macroeconomic and fiscal framework since 2005, the macroeconomic situation of the Congo has improved significantly. However the Republic of Congo is significantly behind the African Region in terms of per capita income which, in 2004 was 750 (PPP Int.\$) compared with 2,074 (PPP Int.\$) for the African Region [16]. In 2010, the Human Development Index ranked the Republic of Congo 126 (out of 169 countries) [17].

1.2.2 Political Context

The situation in the Republic of Congo in recent years has been characterized by the consolidation of peace (final peace agreement signed in 2003) and the gradual normalization of political life. However, national reconciliation, security of the entire territory, the humanitarian situation and the effective functioning of institutions remain major challenges. The Republic of Congo is divided into 12 departments. In the areas of social and health care, the departments build or acquire, equip, maintain, manage and ensure the maintenance of various facilities i.e. nurseries, kindergartens, health posts, health centers, and integrated health centers. During the war one of the departments that was most adversely affected by the war, was the Department of Pool, just north of Brazzaville.

1.3 The health system in the Republic of Congo

The health situation in Congo is characterized by the precarious state of health and performance of health services [18]. Thus to improve the system to health, the Minister and Department of Health and Population (MSP) insists on improvements in both quality of and access to care. In this perspective and in implementing the recommendations of the Alma-Ata Declaration [19], the Congo has started a project in collaboration with the cooperating agencies regarding the organization of basic health care [18] and has developed le Plan National de Développement Socio-Sanitaire (PNDS) [20] in response to the findings of surveys about the poor national health situation.

In 2003 the total government expenditure on health as a % of GDP was 2%. In simple terms, the government covers the cost of health worker salaries, building, acquiring, equipping, maintaining, managing and ensuring the maintenance of health posts, health centers and integrated health. The costs of primary, secondary and tertiary care and costs for medications are paid for by patients. For government run CSI,

consultation costs are fixed by the government. In 2003 it was estimated by WHO that the per capita total expenditure of health at average exchange rates was 19 US\$ [16].

1.3.1 Organizational Structure

The health system is organized around an administrative structure, an operational structure and community organizations, civil society organizations and sectors related to health care.

The administrative organization of the health system consists of the central structure (cabinet du ministre, inspection générale, directions générales et centrales), des directions départementales de la santé et des Circonscriptions Socio-Sanitaires (CSS), and the functional organization of the cabinet du ministre, which manages and defines the direction of the health system in Republic of Congo. The implementation of the Health Plan is managed by the Directorate General of Health (DGS), which in turn manages the Direction Départementale de la santé (DDS), and it is the DDS which manages the Circonscriptions Socio-Sanitaire (CSS), Health Districts. For the Department of Pool, the Départementale de la santé du Pool (DDSP) is based in Kinkala, approximately 80 km from Brazzaville. For the CSS Ignié Ngabé, the CSS is based in Odziba approximately 100 km from Brazzaville.

In the Republic of Congo, the health system is organized into 41 Circonscriptions Socio-Sanitaires (CSS) whose distribution is based theoretically on demographic and geographic accessibility of the population to health structures. The CSS are subdivided into health areas (Aire de Santé) within which are theoretically located 351 integrated health centers (CSI). Each CSS is in principle supported by a district hospital for referrals. The hospital of Talangai which is located in the northern part of Brazzaville is the reference hospital for the population of Ignié Ngabé, due to its proximity to Ignié Ngabé.

The CSS manage the individual Centres de Santé Intégré (CSI) including supervision of the CSI, provision of staff members, supply of medications and collection of health data (epidemiological, frequentation). However this management is often less than adequate and commonly the CSI are run autonomously by the manager of the CSI, as individually functioning units.

The National Health Development Plan [20] (PNDS) from 2006 to 2010 provides the framework for the implementation of the strategy of health for all, and forms part of the Millennium Development Goals (MDGs).

1.3.2 Drugs

Since 2004, the Republic of Congo has implemented a drug policy that aims to improve the accessibility and availability of essential medicines throughout the territory. Within this framework, la Congolaise des médicaments essentiels et génériques (COMEG) was established to ensure the acquisition and supply of essential drugs to health facilities. To date, the COMEG is still failing to supply health centers regularly. This results in recurrent and prolonged shortages of essential drugs, although many local pharmacies are well provisioned with medications.

1.3.3 Health Information System

Efforts in recent years to strengthen le Système d'information Sanitaire (SNIS) (National Health Information System (NHIS)) have resulted in the adoption and implementation of health registers and reporting of standard activities in integrated health centers (CSI), and also a sub-system of epidemiological monitoring and the practice of regular monitoring of vaccination coverage. However, despite these efforts, the SNIS is still not operating well, and is characterized by many weaknesses and failures.

1.3.4 Health Provision in Rural Areas

In rural areas, for populations of less than 2500 inhabitants, normally a poste de santé (Health Post) is provided. For populations greater than 2500 a CSI is provided. In addition, in theory a CSI should be no further than between 15 and 25 kms from someone's home (differing reports of the distance are provided by different sources). However, this is not always the case, and this can be clearly seen in Ignié Ngabé district (see Table 1, page 15 for population details and provision of CSIs of the Aires de Santé of Ignié Ngabé). In urban areas a CSI is generally provided for a population of more than 5000 inhabitants. In rural areas, CSI are staffed normally by nurses, auxiliary nurses and midwives. In the CSS Ignié Ngabé there is 1 Doctor (who took up his post in August 2010) for the whole population. Prior to that the last Doctor serving the population of Ignié Ngabé stopped working in 2005. In Ignié Ngabé the number of health workers per CSI is presented in Table 1, page 15.

1.3.5 State of health of the population

Mortality seen in Congo is mainly attributed to the persistence of infectious and parasitic diseases as well as malnutrition. It is also associated with multiple environmental and socio economic factors. Neonatal mortality was 33 per 1000 in 2005. The leading causes of death among children under 5 years have remained unchanged for several years - malaria (31%), diarrhea (26%) acute respiratory infections (ARI) (14%) and HIV infection (7%) [16][21].

1.3.6 Cost Recovery System

A system of cost recovery (user fees) based on a flat fee for the standard treatment of an episode of illness was established in the Republic of Congo at the end of the 1980s. The price of consultations is set by the government (MSP) through the offices of CSS for the CSI's they manage. In the CSS of Ignié Ngabé, an adult consultation costs 2500 CFA per illness episode (about 4 Euros). The cost of this consultation includes medicines and certain medical procedures. An infant consultation costs 1500 CFA (about 2.50). A birth costs 7000 CFA (about 12 Euros).

There is no national social security system in operation in the Republic of Congo for the general population, however certain occupations (for example government workers, Congolese Red Cross National Staff) have social security coverage. Informal sector workers have no social security coverage.

The CFI (Contribution Financière Initiale) is a 1 off payment of 2500 CFA that families can pay and that reduces the consultation costs at the CSI level, it is designed to implicate families living in rural areas to participate in the effort to have quality health care that is affordable.

With the payment of the CFI, the cost of an adult consultation is reduced to 2000 CFA (approximately 3.25 Euros). The CFI covers all members of a family, regardless of the number of family members. At the population level, uptake of the CFI is generally very low for reasons unknown and administration of this program at the CSI level is far from adequate.

Some treatments in the Republic of Congo are in principle free but in reality this is not always the case i.e. childhood vaccinations, diabetes treatment, malaria treatment (ages 0 to 15), Cesarean sections.

1.3.7 Repartition of CSI Receipts

Every month the takings of each CSI is redistributed in the following way. 55% to purchase medications, 20% bonus for the CSI personnel, 12% for the functioning of the CSS, 8% for the functioning of the CSI, 5% for the COSA to carry out their activities.

1.3.8 The COSA (Health Committees)

Every Aire de Santé has a COSA, a health committee of 9 representatives, 8 elected representatives of the local community plus the manager of the CSI in that Aire de Santé. The elected representatives are elected for a 2 year term. The responsibility of the COSA is to be the link between CSI and the community. As noted above every month the COSA receive 5% of the CSI receipts to help them carry out their work. In Ignié Ngabé, not all COSAs are functional and the 5% of the CSI receipts destined to help the COSA carry out their activities are not always used for their intended purposes. The main responsibilities of each COSA are as follows – to assure the functioning of the CSI, thus to bring a real service to the population in terms of health, to develop actions in terms of information, education and communication (IEC) in health for the population of the Aire de Santé they serve, to participate in the planning process of the CSI, including budget approvals, to ensure continuing dialogue between the CSI and the population, to promote health, particularly in the areas of HIV/AIDS, elevation of poverty and activities of development for the population they serve. It should be noted that not all Aire de Santé have the same population or the same number of villages, therefore some COSAs have a much larger scope of work and geographical area to cover than others. For example for the Aire de Santé of Ignié the population is 22,000 inhabitants spread over approximately 80 villages whereas the population of Aire de Santé Mbé is less than 2,000 inhabitants spread over only 2 villages.

1.3.9 Private Health Care in the Republic of Congo

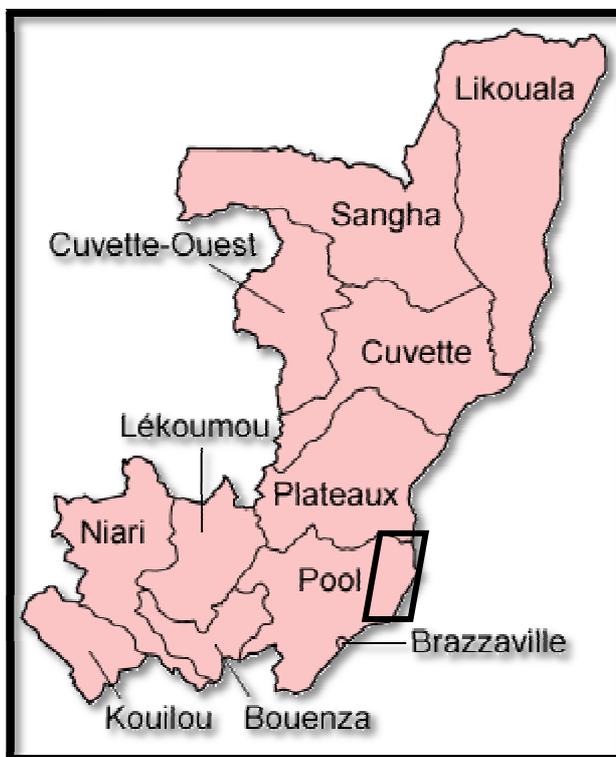
The system of private health provision is not well developed in rural areas of the Republic of Congo, however in Ignié Ngabé private health care options do exist and are generally well used by the population. Private health provision is generally limited to small private medical practices run by nurses or auxiliary health workers with limited training. These clinics are well used by the population for a number of reasons - availability of essential medicines, proximity to the population, none fixed consultation costs / flexible payment options and cultural acceptability.

1.4 Background and Rationale of the study

In 2008, the Minister of Health and Population (MSP) proposed to the Congolese Red Cross (CRC) and the French Red Cross (FRC) on a contractual basis, the overall support of a health district. By mutual

agreement, two of the three administrative districts of Ignié, Ngabé and Mayama that make up the CSS Ignié-Ngabé, were selected for funding of primary health care. The selected 2 districts were Ignié and Ngabé, where 8 CSI are located. The districts of Ignié and Ngabé are located in the Department of Pool and were badly affected by the war hence the selection of these districts for the project. The project is embedded within the National Health System of the Republic of Congo.

Figure 2 Map showing Districts of the Republic of Congo. The Small black box (bottom right) illustrates CSS Ignié Ngabé.



The CSS Ignié Ngabé (66,030 inhabitants according to 2007 census, more than 200 villages), is a rural subsistence farming area north of the capital Brazzaville. The villages are scattered over a plateau with an altitude of between 500 and 600 m.

The population is sparsely scattered over an area of about 12,000 km² (1.3 times the size of Corsica), having a population density of approximately 6.5 inhabitants per km². This area is easily accessed and traversed by the paved road going north from Brazzaville, the N2. Many villages can be found beside this road. However, the other part of this district, to the east, and to the west (facing the river Congo), is not easily accessible. The access to this part of Ignié Ngabé is by non paved roads that are often impassable, and by the river Congo itself. For this reason, access to health care is not easy for the general population of Ignié Ngabé with some people traveling great distances to get to their local CSI, which could be considered a weakness of the health system of Ignié Ngabé.

It is within this context that the project started entitled “The support to the improvement of basic health care in the CSS of Ignié Ngabé” («D’appui à l’amélioration des soins de santé de base dans la CSS d’Ignié-Ngabé ») on March 13, 2009 for 36 months until March 2012. The priority target groups covered by the

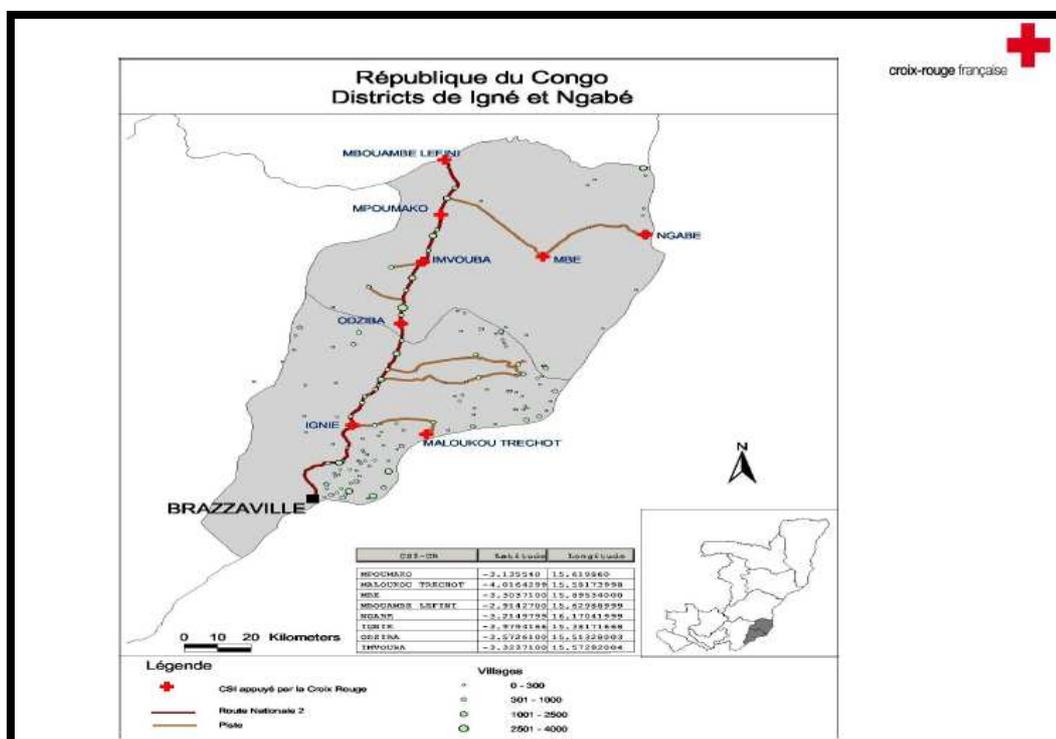
project are pregnant women, children under 5 years old and the sick. The funder of the project is Agence Française de Développement (AFD).

Table 1 CSI supported by the Congolese and French Red Cross in Ignié Ngabe.

Name of CSI	Distance to Brazzaville	to	Population Estimate (2007)	Type de structure	Number of health care workers
IGNIE	45 km		22.000	PMA	30
MALOUKOU¹	75 Km		3.300	PMA	2
ODZIBA²	95 Km		10.556	PMAE	10
IMVOUBA	124 Km		9.240	PMA	4
MPOUMAKO	145 Km		9.000	PMA	5
LEFINI	174 Km		2.040	PMA	3
MBE	193 Km		1.740	PMA	2
NGABE	233 Km		8.154	PMAE	8

In Ignié Ngabé most CSIs provide a limited ‘paquet minimum d’activité’ (PMA) general consultations and services plus maternity services (deliveries). In Ignié Ngabé 2 CSI will provide a ‘paquet minimum d’activité élargi’ (PMAE), each having an operating theatre allowing operations to be carried out as well as other general health care services and maternity services.

Figure 3 Map showing the locations of the CSI supported by the French the Congolese and French Red Cross in Ignié Ngabe.



¹ Maloukou no longer functioning as a CSI as land where CSI is located has been expropriated.

The overall objective of the project is to improve access to health services and quality care in the District CSS Ignié Ngabé, while strengthening the capacities of the Congolese Red Cross. Its specific objectives are to improve the quality of health infrastructure, capacity building of the management team of the CSS (in management, administration, planning, monitoring and evaluation) and knowledge of caregivers on best practices in partnership with the Congolese Red Cross.

After two years of implementation of the project, a core CSS management team has been created, 3 CSI have been rehabilitated and for 3 others this rehabilitation work is continuing. Each health area has a Health Committee (COSA), although as mentioned above not all are functional. The capacity of all care providers has been reinforced by theoretical training sessions on several topics (medical care, medication management) and these providers have continual supervision and training to improve their quality of care.

During the first 2 years of the project, SNIS data shows an increase in attendance at the CSIs (5% at start of project to 9% today), but without achieving the expected results (30% of the population attending the CSI 1 time per year). It is therefore essential today to better understand the factors explaining the health behaviours of the population of Ignié Ngabé which in turn may explain the low attendance and frequentation at the CSIs. As the project area is located in a rural area of an African country, an understanding of this population regarding health issues is essential. This necessity justifies the choice of a specific type of survey that consists in investigating knowledge, attitudes and practices (KAP) of the population of Ignié Ngabé related to health topics. It should be noted that no baseline KAP study was carried out before the project started, so effectively the KAP study carried out will give us base line data for the population of Ignié Ngabé regarding health behaviours, attitudes and practices. At the end of the project in March 2012, the same KAP study will be carried out with the population of Ignié Ngabé, to give end of project results and project impact.

1.5 KAP Studies

KAP studies are highly focused evaluations that measure changes in human knowledge, attitudes and practices in response to a specific intervention, usually outreach or education. KAP studies have been widely used and valued around the world for at least forty years in public health, water supply and sanitation, family planning, education and other programs. National governments, nongovernmental groups, United Nations agencies and the World Bank use KAP evaluation methods. KAP studies are more cost-effective and resource conserving than other social research methods because they are highly focused and limited in scope. KAP studies tell us what people know about certain things, how they feel, and how they behave. Each KAP study is unique to a particular setting and designed for a specific issue. The data gathered can be analyzed quantitatively or qualitatively depending on the objectives and design of the study. Whereas social surveys may cover a wide range of social values and activities, KAP studies focus specifically on the knowledge, attitudes and practices (behaviors) for a certain topic.

- The Knowledge possessed by a community refers to their understanding of that topic.
- Attitude refers to their feelings toward this subject, as well as any preconceived ideas they may have towards it.

- Practice refers to the ways in which they demonstrate their knowledge and attitudes through their actions.

Understanding these three dimensions will allow a project to track changes in them over time, and may enable the project to tailor activities to the needs of that community. KAP should ideally be conducted twice, both pre-intervention (baseline KAP study) and post-intervention, in order to measure impact [22]. An understanding of the population of Ignié Ngabé in matters of health can be gained using this research technique, in a limited time frame and with limited resources. A KAP study has also been requested by the funder of the project, AFD. As mentioned above a base line KAP study was not conducted in Ignié Ngabé, 2 years into the project the first KAP study is being conducted. However, it should be noted that KAP studies have not been widely tested in the health sector of the Republic of Congo and in Ignié Ngabé, to our knowledge, this is the first study of its kind.

2 Objectives

2.1. Identify and analyze the factors and mechanisms behind the low attendance of the CSIs by the population of Ignié Ngabé.

2.2. Analyze the indigenous representations, belief systems, attitudes, and perceptions of people in rural areas supported health centers with regards to modern and traditional medicine.

3 Methodology

3.1 Type of Study

A population based cross sectional KAP (Knowledge Attitudes and Practices) study, gathering both qualitative and quantitative data.

Prior to this KAP study an initial exploratory qualitative study (focus groups and key informant interviews) were conducted to provide background information on the population of Ignié Ngabé with regards to the study objectives, to allow for the appropriate formulation of the KAP questionnaire.

3.2 Study Population

The over 18 years of age adult population living in Ignié Ngabé Circonscription Socio-Sanitaire (CSS), Department Pool, Republic of Congo in the following 7 Aires de Santé – Ignié, Imvouba, Lefini, Mbé, Mpoumako, Ngabé, Obziba.

The approximate total population living in Ignié Ngabé CSS is 66,030 inhabitants. The approximate adult population is 31,365 (2007 census) and it is this population that made up our study population.

3.3 Study Inclusion Criteria

Over 18 years of age. Persons who have lived in Ignié Ngabé District during the last 1 year.

3.4 Respondents' Incentives

No incentives were provided to the respondents of this study.

3.5 Questionnaire

A KAP questionnaire containing 64 questions covering population demographics and the following topics was developed to investigate the knowledge, attitudes and practices of the population of Ignié Ngabé district regarding:

- Theme 1 - The organization of the Health System
- Theme 2 - The Quality of Care provided by the Health System
- Theme 3 - Accessibility to the Health System - Geographic and Financial
- Theme 4 - Traditional Medicine / Modern Medicine

The questionnaire was written in French, and if required, simultaneously translated into Lingala (the commonly spoken, universal language of the population of Ignié Ngabé) by the survey staff as they were carrying out the questionnaires.

A preliminary version of the questionnaire was field tested (pilot study) in Mandielé village (a village within the study area of Ignié Ngabé) and refined accordingly, prior to utilization in the full KAP survey.

3.6 Sampling Methodology

A non stratified 2 stage cluster sampling methodology was used.

30 clusters were surveyed i.e. 30 villages (1 cluster is 1 village). The actual location (in which Aire de Santé) of each cluster was calculated according to the population of each Aire de Santé using the technique Probability Proportional to Size Cluster Sampling (PPS). The population of each Aire de Santé was the primary sampling unit (PSU).

The cluster (village) was selected at random from a list of all the villages of the district of Ngabé (where individual village populations were not available) and for the district of Ignié by another round of PPS sampling (where the population's of individual villages were available) (the secondary sampling unit).

7 interviews were carried out per cluster. Household identification once inside clusters was carried out using the Epi Method (spin the pen) using random number tables to select the starting household [23].

Only one interview was carried out per household. If there was more than 1 house located in a compound, 1 house was selected per compound where the interview was carried out. The final selection of the interviewee and the house (where there were multiple houses in a compound) was again carried out using random number tables. 3 teams of interviewers carried out the data collection. Each team was made up of 2 interviewers, 1 driver and 1 supervisor. Quality control and checking of questionnaires was carried out on a daily basis. All 3 teams were supervised by 1 overall survey supervisor, the practicum student.

Interviews were carried out between 18 April 2011 and 29 April 2011, excluding the weekend.

3.7 Sample Size

Sample size 210 individuals. The design effect (DEFF) was assumed to be 2 for sample size calculations [23].

3.8 Interviewers

Congolese Red Cross volunteers living outside the area of Ignié Ngabé (to avoid bias), 1 member of CSS staff and 1 member of the COSA of Ignié, who has been trained on performing KAP studies, conducted the survey face to face with the study participants. 2 days of training was provided to the survey team prior to the survey commencing.

3.9 Data Entry

Data entry was conducted in the 2 weeks following the fieldwork. An electronic 'mask' was created using Epi Info 3.5.3 (www.cdc.gov/epiinfo/) to facilitate the data entry process. Supervision, daily monitoring and correction / cleaning of data entry were carried out.

3.10 Data Analysis

Data analysis was performed using Epi Info 3.5.3 (www.cdc.gov/epiinfo/).

3.11 Socio Economic Status Indicator

A 6 point household status index was used as a proxy of socio economic status (SES). The index was constructed on the basis of 3 variables. Variable 1 - possession of a TV, bicycle, motorbike, car. Variable 2 – source of water. Variable 3 – source of energy. These items were summed for each household and the distribution of the household status index score established for the total study sample. On the basis of the median score, the study population was divided into two grades, namely low economic status (total score \leq median threshold) and the high socio economic status (total score $>$ median threshold) [24]. See Appendix Table 11, for further details of scoring of variables.

3.12 Statistical Analysis

Descriptive statistics were used to explore the characteristics of the population and their responses to the questions asked in the questionnaire.

Bivariate analysis was carried out on main indicators of interest and the Pearson Chi-Square was used to assess the association between these and the gender, males (n=109) and females (n=94), age group, younger individuals (up to and including 38 years of age, n=106) versus older individuals (over 39 years of age n=97), socio-economic status, low (n=111) versus high (n=92) and distance between household and CSI, closer (less than or equal to 10 km (n=99)) versus further away (more than 11km (n=76)).

Unadjusted results are presented. The analysis does not adjust for clustering amongst households or allow different sampling weights for non-response adjustment. As a consequence, the standard errors of the estimates may be under-estimated and the inference drawn from the Pearson statistical tests biased (assuming something is significant when it is not). Therefore, in the main, here we report only those test results where the p-value is less than 0.01.

Percentages, where stated may not add up to 100% due to rounding.

4. Results

The final sample included 203 participants, from 29 villages.

The average time taken for 1 interview was 20 minutes (SD=9.4) with the range 8 minutes to 66 minutes.

Only 2 persons refused to participate in the study. The number of houses empty during the study was 26% (i.e. 73 houses out of 276 houses that we went to find 203 persons to interview).

4.1 Demographic, Professional and Socio cultural Characteristics

The study participants consisted of 54% (n=109) males and 46% (n=94) females. Demographic data revealed that the ages for persons interviewed ranged from 18 years to 81 years with a mean, median and mode of 40 (SD=13), 38 and 38 respectively. As previously noted only adults above the age of 18 years were included in the survey.

Table 2 shows the demographic, professional and socio cultural characteristics of the study population including the marital status, level of education, proxy for SES, occupation, ethnic origin religion and household size.

Table 2 Demographic characteristics of the persons in the selected study households in CSS Ignié Ngabé, Republic of Congo, April 2011.

Demographic, Professional and Socio cultural Characteristics		
Characteristics	N	%
Gender		
Male	109	53,70
Female	94	46,30
	203	100,00
Age groups in years		
18-30	56	27,59
31-50	107	52,71
51-70	36	17,73
>71	4	1,97
Marital Status		
Married monogamous	117	57,60
Single	44	21,70
Common-law partnership	21	10,30
Married polygamous	11	5,40
Widow / widower	9	4,40
Separated / Divorced	1	0,50
Highest Level of education completed		
None	25	12,30
Primary	71	35,00
Upto 14 / 15 years	82	40,40
Upto 18 years without Baccalauriate	19	9,40
Upto 18 years with Baccalauriate	4	2,00
Technical College	2	1,00

Occupation		
Farmer / Fisherman or woman	157	77,30
Housewife or Househusband	14	6,90
Commercant	13	6,40
Civil Servant	6	3,00
Unemployed	4	2,00
Private worker	3	1,50
Military	2	1,00
Student	2	1,00
Artisan	1	0,50
Retired	1	0,50

Socio Economic Status (2 lowest, 12 highest)		
2	69	34,00
3	42	20,70
4	29	14,30
5	30	14,80
6	23	11,30
7	4	2,00
8	2	1,00
9	1	0,50
10	1	0,50
12	2	1,00

Ethnic Origin		
Téké	121	59,60
Kongo	39	19,20
Other	27	13,30
M'bochi	16	7,90

Religion		
Catholic	63	31,00
Eglise de Réveille	45	22,20
Protestant	31	15,30
Other	30	14,80
None	27	13,30
Salvation Army	4	2,00
Animist	1	0,50
Adventist	1	0,50
Muslim	1	0,50

Number of persons in households		
1-4	113	55,67
5-9	83	40,89
10 or more	7	3,45

Of the study participants 34% (n=69) resided in Ignié and 66% (n=134) Ngabé. The majority of the participants had only acquired only basic levels of education and few had tertiary qualifications. The vast

majority of people were farmers or fishermen or fisherwomen and married or living in a partnership. The vast majority of people had a low SES.

On average most households had 5 members, and ranged between 1 and 15 people per household. In terms of children under 5 per household, on average there was only 1 child under the age of 5 per household, and ranged between 0 and 7. The mode was 0 and the median 1.

The average time lived in the area for the study participants was 12 years and ranged between 1 year (according to the inclusion criteria for study participants), and 73 years. The mode and the median were both 10 years.

Of the study participants, 110 out of 203 (54%) stated that they were the head of the household. 93 out of 203 (46%) stated that they were not the head of the household.

Comparison of the socio demographic distribution of the study sample did not in all cases match national characteristics [21], particularly in the areas of education (study population of Ignié Ngabé was less well educated) and in terms of marital status (more married individuals and less divorced individuals in the study population of Ignié Ngabé).

4.2 Organization of Health Care Services (Theme 1)

The first area of investigation related to the populations' knowledge, attitudes and practices in relation to the organization of health care in Ignié Ngabé.

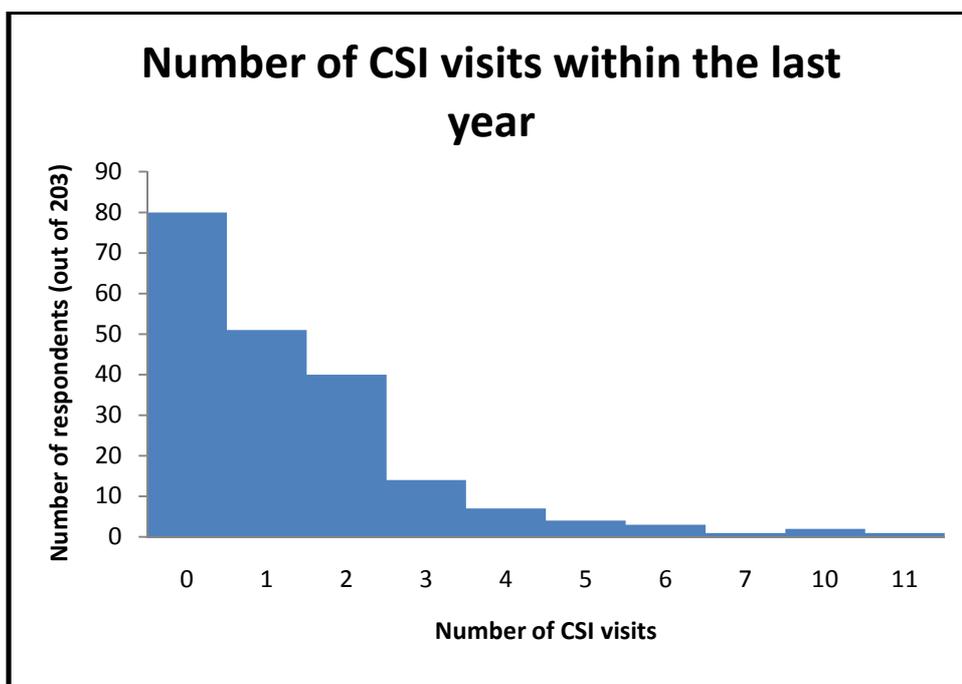
In response to the question 'In general what do you do for health care?' the respondents responded as follows (n=203 participants), see Table 3. Participants could select multiple options if they sought health care in multiple locations. Amongst the study participants no one suggested a Feticher as an option for health care.

Table 3 Locations of where study population of Ignié Ngabé states they go for health care.

	N	%
Go to Brazzaville	107	52,70
Go to CSI	100	49,30
Private medical practice	39	19,20
Auto medication with medicine bought in the street	27	13,30
Auto medication with teas and traditional plants	8	3,90
Auto medication with medicine bought at the pharmacy	7	3,40
Church or other religious location	6	3,00
Traditional healer	3	1,50

Study participants were asked 'During the last year, how many times did you go to the CSI?' Figure 4 presents the results. The average number of visits was 1.4. For the study population, the frequentation recorded is in fact above the government's target of 30% (30% of the population attending the CSI 1 time per year).

Figure 4 Number of CSI visits within the last year of the study population of Ignié Ngabé.



In response to the question ‘Why did you visit the CSI the last time?’ table 4 presents the results (out of 141 persons who stated that they had used the services of the CSI).

Table 4 Reasons that the study population of Ignié Ngabé visited the CSI the last time.

	n	%
General Consultation	46	32,60
Child Consultation	46	32,60
Treatment	16	11,30
Gynaecological Consultation / Pregnancy (women)	13	9,20
Other	11	7,80
Laboratory Tests	5	3,50
Vaccination	4	2,80
	141	100,00

Knowledge about the location of the Health Centers was high, with only 1 person out of 203 unable to name the health center closest to their home.

58% (n=118) of respondents stated that they knew the services offered by the CSI, against 42% (n=85) who did not know. Carrying out bivariate analysis, for this indicator significant differences were found in distance to the CSI (p=0.013, n=175), people who live closer are better informed about the services that the CSI offers than people who live further away. No significant differences were found according to gender, age or SES.

Knowledge about the treatments offered free in Congo was slightly higher than the knowledge of the services offered by the CSI with 65% (n=131) of study participants stating that they know the services available free of charge in Congo, against 35% (n=72) who did not know.

49% (n=98) of study participants stated that they think that the services offered by the CSI are well organized, 29% (n=57) think that they are not well organized and 22% (n=43) did not know (199 respondents out of 203). Carrying out bivariate analysis for this indicator significant differences were found in age group (p=0.017, n=155), younger people thinking that the services at the CSI are well organized more than older people. No significant differences were found according to gender, distance from the CSI and SES.

28% (n=56) of study participants stated that they think that the CSI is well supplied with materials, against 50% (n=100) who think the CSIs is not well supplied with materials and 22% (n=43) did not know (199 respondents). No significant differences were found according to age, gender, distance from the CSI and SES.

Regarding the strong points of the CSI, Table 5, the following responses were stated by the study participants (in ascending order out of 203 respondents). Respondents could make multiple selections across the proposed responses. 39 people (19%) were not able to state any strong points regarding the CSI.

Table 5 Strong points of the CSI, according to the study population of Ignié Ngabé.

	n	%
Fixed price of consultations	79	38,90
Treatment and care given by the CSI	56	27,60
Treatment packages offered by the CSI i.e. delivery of babies	51	25,10
Level of training of the CSI team	16	7,90
Proximity to someone's home	11	5,40
Free nature of some treatments	7	3,40
Opening hours	4	2,00

Regarding the weak points of the CSI, Table 6, the following responses were stated by the study participants (out of 203 respondents). Respondents could make multiple selections across the proposed responses.

Table 6 Weak points of the CSI, according to the study population of Ignié Ngabé.

	n	%
Lack of materials required by the CSI	101	49,80
Lack of blood bank	96	47,30
High price of consultations	59	29,10
Distance to the CSI from someone's home	53	26,10
Frequent absenteeism of CSI staff	50	24,60
Weak collaboration of the team of the CSI with the population	42	20,70
Lack of information (no Information, Education and Communication (IEC)) regarding the CSI and the services they offer)	34	16,70
Low level of training of the CSI team	32	15,80
Lack of organization at the CSI	24	11,80

In terms of what can be done to improve the CSI, Table 7, the study participants suggested the following options (out of 203 participants). Respondents could make multiple selections across the proposed responses.

Table 7 Possible Improvement to the CSI, according to the study population of Ignié Ngabé.

	n	%
Improve the material that the CSI have to work with	94	46,30
Open a pharmacy within the CSI	82	40,40
Reduce the cost of consultations	74	36,50
Better train the CSI staff	74	36,50
More services available at the CSI	65	32,00
CSI to be moved closer to the study participants home / open a CIS in the participants village	62	30,50
Make treatments free at the CSI	59	29,10

Only 40 persons (20%) were able to state that they know what a COSA is. The vast majority 159 persons (80%) do not know what a COSA is.

Out of the persons who knew what a COSA is only 20 persons (47%) think that the COSA work well in their communities, 16 persons (37%) do not think this and the rest do not know.

The vast majority of respondents obtain information on health and health care by asking their friends and family 144 out of 203 respondents (71%). Other sources of information are asking the CSI for information 38 persons (19%), asking the COSA for information 20 persons (10%), asking local NGOs for information 10 (5%) persons. Least stated options were asking for information in Brazzaville or RDC 32 respondents (16%). Respondents could select multiple responses to this question.

Out of 197 respondents 70% (n=138) think that the treatments they receive at the CSI have cured them, 18% (n=35) think that the treatment did not cure them and 12% (n=24) did not know.

In terms of other health care structures or places where the population could be treated in their community (outside of the state run CSI) the following establishments were named, Table 8 (n=203, respondents could name multiple locations). Amongst the study participants no one suggested a Feticher as an option for health care.

Table 8 Health Care structures, outside of the public CSI, where the population of Ignié Ngabé can be treated.

	n	%
Brazzaville	79	38,90
Auto medication with medicine bought in the street	52	25,60
Private Medical Practice	47	23,20
Auto medication with traditional plans	24	11,80
Democratic Republic of Congo	20	9,90
Church or other religious location	3	1,50
Pharmacy	3	1,50
Traditional Healer	1	0,50

4.3 Quality of Care (Theme 2)

The second area of investigation related to the populations' knowledge, attitudes and practices in relation to the quality of health care in Ignié Ngabé.

Out of 203 respondents, 63% stated that the services offered by the CSI are of a good quality, against 17% who do not think so. 20% of respondents did not know.

In terms of which establishments offer the best health care, the following results were obtained, Table 9 (203 respondents). Respondents could make multiple selections across the proposed responses. Amongst the study participants no one suggested a Feticher as an option for the best quality health care.

Table 9 Best Health Care options, according to the study population of Ignié Ngabé.

	n	%
CSIs	153	75,40
Brazzaville Health Care	83	40,90
Private Medical Practices	42	20,70
Democratic Republic of Congo Health Care	12	5,90
Churches or other religious locations	7	3,40
Traditional Healers	1	0,50

67% of respondents have confidence in the CSI staff, 20% do not and 13% do not know (203 respondents).

135 respondents (67%) think that the CSI have a good level of cleanliness, 33 respondents think the CSIs are dirty, 17 respondents think that the CSIs are decrepit and 23 do not know (203 respondents).

4.4 Accessibility to the Health System - Geographic and Financial (Theme 3)

The third area of investigation related to the populations' knowledge, attitudes and practices in relation to accessibility to health care in Ignié Ngabé.

Geographic Accessibility

68% (n=139) of respondents think that the CSI is too far from their home. 29% (n=58) do not agree and 3% (n=6) do not know (203 respondents). Carrying out bivariate analysis, for this indicator, significant differences were found in socio economic status ($p < 0.01$, n=197), gender ($p = 0.03$, n=197) and distance to CSI ($p = < 0.01$, n=172), where those with low SES, men and those being further away being more likely to respond that the CSI is too far from their home. No significant differences were found for age group.

For the indicator, do respondents think that the distance to the CSI stops them seeking treatment, significant differences were found for SES ($p = < 0.01$, n=198) and distance to CSI ($p = < 0.01$, n=172), where those with low SES and those being further away from the CSI being more adversely affected. No significant differences were found for age group and gender.

The majority of respondents come to the CSI on foot 125 out of 203 (62%), followed by communal transport 54 persons (27%), 24 by pirogue (12%), 21 by bicycle (10%), 14 by motorbike (7%), 9 in a private vehicle (4%). Individuals often use more than one form of transport to arrive at the CSI and this is reflected in the results.

Financial Accessibility

46% (n=94) of respondents think the cost of consultations is affordable, 34% (n=68) think the cost is too high, 6% (n=12) think the costs are not expensive and 14% (n=29) do not know (203 respondents). When carrying out bivariate analysis looking at SES, gender, age group and distance to CSI in terms of individuals' perspectives on the costs of consultations there are no significant differences across any of the categories regarding the costs of consultations.

Regarding the CFI (Contribution Financière Initiale), only 13% (26 respondents) know what the CFI is, 87% do not know (177 respondents) (out of 203 respondents).

Out of the 26 respondents who know what the CFI is only 11 respondents (42%) pay it and 15 respondents (58%) do not.

Out of these 26 respondents who know what the CFI is, 6 respondents think the price for the CIF is too expensive, 16 think the cost is affordable, 2 respondents think it is not expensive and, 2 respondents do not know (26 respondents).

4.5 Traditional and Modern Medicine (Theme 4)

The fourth area of investigation related to the populations' knowledge, attitudes and practices in relation to traditional and modern medicine.

The type of medicine that is used the most by the study participants when they or one of their family is sick is modern medicine 97% (n=197), 2.5% (n=5) traditional medicine, and 0.5% (n=1) other types of medicine (203 respondents).

The vast majority of respondents think that modern medicine is the best functioning type of medicine 96% (n=195), with only 3% (n=6) stating that traditional medicine is the best functioning medicine, 1% (n=2) other types of medicine (203 respondents).

93% (n=189) of respondents have confidence in modern medicine (out of 203 respondents) whereas only 31% (n=62) have confidence in traditional medicine (199 respondents).

In people's communities only 25% (n=50) state that they know a traditional doctor. 65% (n=132) do not and 10% (n=21) do not know (203 respondents).

However traditional plants are used by respondents always 7% (n=14), often 17% (n=35), rarely 44% (n=89), and never 32% (n=65).

According to the study population again 51% (n=103) think that modern medicine heals the best but followed closely by 46% (n=94) believing the power of God has the best healing power. 2.5% (n=5) believe

that traditional medicine heals the best and 0.5% (n=1) of the study population does not know (203 respondents). When looking at SES (low/high), sex, age (younger/older) and distance to CSI (close/far) in terms of individuals' perspectives on the healing power, there are no significant differences across any of the categories.

4.6 Sanitary Situation of Households

The final area of investigation related to the populations' daily living practices.

80% of the study participants stated that the use latrines and 82% of the population state that they sleep under an insecticide treated bed net. Responses to these questions were not visually verified by the study team.

5 Discussion

Accessibility and utilization of health services and health care remains a major challenge in developing countries [25].

Geographic accessibility is an important barrier to access for health services and access to information about health services in Ignié Ngabé. With over 200 villages sparsely distributed over a large geographic area, where there are no means of transportation in many remote villages (no public or private vehicles) and where communication links with the outside world are only a truck delivering supplies, in some villages only once per week, this should come as no surprise. As many villages are ill-accessible it is commonly seen that if these residents leave their village to seek health care, they will not stop at the first CSI that they arrive at, preferring to travel to Brazzaville where they have family that they can stay with, and be sure that they will have the health care and medicines that they need. Geographic distance also results in health seeking in the closest establishment to offer health care, whether than be the local private clinic in remote villages or in a different country (DRC) for villages that are beside the Congo River, that are much closer to health care options in a different country than the local CSI.

Financial accessibility is also an important barrier but according to the findings of our study less so than geographical accessibility, but still key. Financial (and geographic) accessibility also pushes the population to private medical practices where payment options are not fixed and may generally be more flexible, and towards auto medication. In relation to average incomes in the Republic of Congo consultation costs are still considerable.

In terms of availability, there are major ongoing issues in terms of the lack of supply of medical materials in Ignié Ngabé that need to be addressed. However, according to our findings the majority of the study population thinks that the services offered at the CSIs are of a high quality, that the treatment has cured them and confidence in the staff working at the CSI is also high. Regardless, the population still prefers other health care options rather than using the CSIs, preferring for example to travel to Brazzaville for care, perhaps for the reason mentioned above. These results are somewhat contradictory. The population is potentially ill informed about the services of health care open them, notable by the extremely low level of knowledge of the COSA and the CFI found amongst the study population and the significant differences

found in levels of knowledge about the services offered by the CSI in villages far from the CSI versus villages closer to the CSI ($p= 0.013$, $n=175$).

In terms of acceptability, modern medicine has seen to be the medicine of choice of the population of Ignié Ngabé; therefore there should be a good level of acceptability of the CSIs and the services they offer to the population. The population of Ignié Ngabé is very religious, with a certain level of fatalism about who will be healed and who will not, existing alongside what modern medicine can provide the population.

It should be noted that our study population can be considered 'frequent users' of the CSI, with frequentation of the CSIs above government objectives.

6 Constraints and Limitations

Population data from the last census (2007) is not considered to accurate and is considered to be an overestimate of the actual population by over 10,000 inhabitants; however these figures were the best figures available to work with.

The exact locations and names of villages were not always certain as detailed maps of Ignié Ngabé do not exist.

The populations of individual villages were only available for the district of Ignié, not the district of Ngabé.

No base line study (KAP or other) of the population of Ignié Ngabé was conducted at the start of the Red Cross project. Therefore this KAP study is the first of its kind to be carried out in Ignié Ngabé. As the Red Cross project has already been in operation for 2 years, changes in the population regarding matters of health may have already occurred due to the project's activities, but this is something that we cannot measure due to the fact that no base line survey was carried out.

Accessibility to villages was problematic due to poor weather and road conditions. One the villages on the sampling schedule (Zola) was not accessible and therefore results are presented for 29 villages (203 questionnaires), not 30 villages (210 questionnaires).

Out of the 29 villages, not all villages had 7 interviews carried out in them, as was originally planned. In 3 villages 8 questionnaires were carried out, in 3 villages 6 questionnaires were carried out and in 23 villages 7 questionnaires (203 questionnaires in total).

A considerable number of houses (26%) were empty during the survey (residents were at work, generally in the fields surrounding the village). This could lead to selection bias.

In terms of answers to questions about the use of traditional medicine and fetichers, information bias may be an issue with the study participants as these topics may be thought of as a 'taboo' and not openly discussed by the population of Ignié Ngabé.

As noted above, the questionnaire was only developed in French. There was no translation or back translation of the questionnaire into Lingala or other local languages due to limited time and budget. However, it should be noted that with regards to the language, Lingala (the language most commonly used

to carry out the questionnaires), Lingala is more a spoken language, than a written language which could have made translations of the questionnaire into Lingala problematic.

Data Entry – double data entry was not carried out due to limited time and budget.

Cluster Sampling Analysis – given the nature of cluster sampling, our sample is affected by the design effect, that is variable specific and that should in theory be estimated for each variable. We believe that the design effect will be in the nature of between 2 to 3 for our survey, which means a much greater variability in the data, but this is generally seen as unavoidable in such studies that are essentially exploratory.

Calculations to account for this were not made prior to analysis of data due to limited time, as preparation for field work and carrying out of the field work took up the majority of time for the practicum. This analysis, to account for cluster sampling / design effect will be carried out in due course (before attempting to publish the results).

The geographic area of Ignié Ngabé is vast. The majority of activities of the project concentrate on and around the CSIs. Therefore, villages that are far away from the CSI are unlikely to benefit from these activities and therefore no impact will be seen in these far away villages in the KAP surveys carried out in Ignié Ngabé. The relevance of a KAP survey for a project of this nature covering such a large geographical area, must therefore be questioned.

7 Ethical Considerations

Necessary approvals were sought for the study – Ethical board of the Republic of Congo, Ministry of Health, Local Government (Ignié Sous Préfecture, Ngabé Sous Préfecture), village chiefs for each village where survey was carried out, the local community. Verbal consent to participate was garnered for all study participants, including for photographs taken during the fieldwork. Questionnaires were anonymous.

8 Conclusion

Despite cultural acceptability and overall approval of public health services in Ignié Ngabé, low frequentation of health centers remains as an issue that must be addressed, in part by improved health care and availability of medical materials, community involvement, provision of information and improved access to health services by remote communities, if the health of the population of Ignié Ngabé is to be improved.

9 Recommendations

MSP Recommendations

Redrawing of the carte sanitaire of Ignié Ngabé taking into consideration real population numbers and distances to CSIs so that the population of Ignié Ngabé all have real access to a CSI, by redistribution of CSIs across the territory. The current locations of the CSIs in relation to the distribution of the population of Ignié Ngabé are currently not in line with government guidelines (maximum distance to CSI, maximum population for a CSI).

Develop a solution of health care for villages far away from the CSI, including information provision and real access to quality health care i.e. Travelling health clinics, health posts.

Development of Community Health Workers (CHW) to increase health service provision and further involve the community in the health care of the population of Ignié Ngabé.

Continuing improvement of the management of the CSIs by the CSS.

Continuing improvement of the management of the CSS.

Improve COMEG functioning to ensure continual essential medicine supply to all CSIs.

COSA Recommendations

Re-election of COSA (to re-activate the COSA and their activities).

Training and support of newly elected COSA members to allow them to carry out their responsibilities.

Consider increasing the number of COSA/COSA members in larger Aires de Santé i.e. Aire de Santé Ignié to allow for the effective coverage of the population of the COSA's activities.

Plan of action to be developed by each COSA, according to their Aire de Santé, that will target the whole population that they cover with IEC regarding CSI, their services, CFI.

Red Cross Recommendations

Develop and train a team of Red Cross volunteers coming from the population of Ignié Ngabé.

Prepare an exit strategy for the project enabling continuation of activities when project funding ends (March 2012).

General Recommendations

Involve religious organizations in the planning of health care for the population of Ignié Ngabé (as the population of Ignié Ngabé is in the main, religious and practicing).

Presentation of results of KAP study to key stake holders – COSA, CSI, CSS, DDSP, Congolese Red Cross (including volunteers who carried out the study and the data entry).

10 Bibliography

- [1] A. Benyoussef, A.F. Wessen, T. Phan Tan, and H. Souissi, "Health services: coverage, factors and indices of utilization.," *Bulletin of the World Health Organization*, vol. 51, Jan. 1974, pp. 111-32.
- [2] D.H. Peters, A. Garg, G. Bloom, D.G. Walker, W.R. Brieger, and M.H. Rahman, "Poverty and access to health care in developing countries.," *Annals of the New York Academy of Sciences*, vol. 1136, Jan. 2008, pp. 161-71.
- [3] A. Al-Taiar, A. Clark, J.C. Longenecker, and C.J.M. Whitty, "Physical accessibility and utilization of health services in Yemen.," *International journal of health geographics*, vol. 9, Jan. 2010, p. 38.

- [4] C.N. Hjortsberg, C.A; Mwikisa, "Cost of access to health services in Zambia.," *Health policy and planning*, vol. 17, Mar. 2002, pp. 71-7.
- [5] C.D. James, K. Hanson, B. McPake, D. Balabanova, D. Gwatkin, I. Hopwood, C. Kirunga, R. Knippenberg, B. Meessen, S.S. Morris, A. Preker, Y. Souteyrand, A. Tibouti, P. Villeneuve, and K. Xu, "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, Jan. 2006, pp. 137-53.
- [6] L. Gilson and D. McIntyre, "Removing user fees for primary care in Africa: the need for careful action.," *BMJ (Clinical research ed.)*, vol. 331, Oct. 2005, pp. 762-5.
- [7] P.S. Heller, "A model of the demand for medical and health services in Peninsular Malaysia.," *Social science & medicine*, vol. 16, 1982, pp. 267-84.
- [8] B. McPake, "User charges for health services in developing countries: a review of the economic literature.," *Social science & medicine*, vol. 36, 1993, pp. 1397-1405.
- [9] E.R. Chawla M, "The impact of financing and quality changes on health care demand in Niger.," *The impact of financing and quality changes on health care demand in Niger.*, vol. 15(1), pp. 76-84.
- [10] A.A. Asenso-Okyere WK, Anum A, Osei-Akoto I, "Cost recovery in Ghana: are there any changes in health care seeking behaviour?," *Health policy and planning*, vol. 13(2), pp. 181-8.
- [11] Yoder RA., "Are people willing and able to pay for health services?," *Social science & medicine*, 1989, pp. 35-42.
- [12] W.O. Nabyonga J, Desmet M, Karamagi H, Kadama PY, Omaswa FG, "Abolition of cost-sharing is pro-poor: evidence from Uganda," *Health Policy and Planning*, vol. 20(2), 2005, pp. 100-8.
- [13] N. Chaudhury and J.S. Hammer, "Ghost Doctors: Absenteeism in Rural Bangladeshi Health Facilities," *The World Bank Economic Review*, vol. 3, 2004, pp. 423-441.
- [14] A. Young, "The relevance of traditional medical cultures to modern primary health care," *Social Science & Medicine*, vol. 17, 1983, pp. 1205-1211.
- [15] Ministère du Plan, "Plan national pour l'atteinte des OMD au Congo," 2006.
- [16] WHO, "Congo Health System Fact Sheet," 2006.
- [17] UNDP, "Human Development Index," 2011.
- [18] OMS, "Stratégie de Coopération de l'OMS avec les Pays 2009-2013. Congo.," 2009.
- [19] "Declaration of Alma-Alta," 1978.
- [20] Ministère de la Santé, "Plan national de développement sanitaire," 1991.
- [21] "Enquête Démographique et de Santé du Congo Rapport," 2006.
- [22] L.A. Aday and L.J. Cornelius, *Designing and Conducting Health Surveys. A Comprehensive Guide.*, 2006.
- [23] OMS, "Immunisation Coverage Cluster Survey Reference Manuel," 2005.
- [24] D. Sissoko, A. Moendandze, D. Malvy, C. Giry, K. Ezzedine, J.L. Solet, and V. Pierre, "Seroprevalence and risk factors of chikungunya virus infection in Mayotte, Indian Ocean, 2005-2006: a population-based survey.," *PloS one*, vol. 3, Jan. 2008, p. e3066.

- [25] G. Talani, P; Moyen, "Accessibilité aux services et aux soins de santé à Pointe-Noire (Congo) : cas des circonscriptions socio-sanitaires de M'Paka et Tié-Tié," *Médecine d'Afrique Noire*, 2007, pp. 619-624.

11 Annexes

Table 10 Survey Schedule - 30 clusters (villages), distances to CSI, Brazzaville, accessibility.

N° d'ordre	VILLAGES / QUARTIERS	POPULATION (HABITANTS) ESTIMATION 2009	N° de Grappes	Distance approximative du CSI (km)	Distance approximative de Brazzaville (km)	Village indiquées sur la carte	CSI?	Route
IGNIE 11 VILLAGES								
1	Ignié Ndibou	950	1	0	45	Oui	CSI Ignié	N2
2	Ignié Campement	2048	1	0	45	Oui	CSI Ignié	N2
3	Ignié Campement	2048	1	0	45	Oui	CSI Ignié	N2
4	Imbimi	1222	1	21	66	Oui	CSI Ignié	N2
5	Impé	70	1	38	83	Oui	CSI Ignié	Piste Est
6	Mangoungou	560	1	55	90	Oui	CSI Ignié	Piste Est
7	Maty CVI	265	1	11	56	Oui	CSI Ignié	Piste Ouest
8	Mingali Bombou	763	1	13	58	Oui	CSI Ignié	N2
9	Nkouo	2015	1	33	78	Oui	CSI Ignié	N2
10	Nkouo	2015	1	33	78	Oui	CSI Ignié	N2
11	Zola	101	1			Non	CSI Ignié	Piste Est
MBE 1 VILLAGE								
12	Mbé	Grand village	1	0	193	Oui	CSI Mbé	Piste Est
LEFINI 1 VILLAGE								
13	Mbouambe Lefini	Grand village	1	0	174	Oui	CSI Lefini	N2
IMVOUBA 4 VILLAGES								
14	MAH	Moyen village	1	34	134	Oui	CSI Invouba	Piste Ouest
15	NGOULAYO / BANDAKA	Grand village	1	7	135	Oui	CSI Invouba	N2
16	ESSILE	Petit village	1	5	123	Oui	CSI Invouba	N2
17	MAYA	Petit village	1	10	138	Oui	CSI Invouba	Piste Est
MPOUMAKO 4 VILLAGES								
18	MPOUMAKO	Grand village	1	0	151	Oui	CSI Mpoumako	N2
19	NKIELE	Moyen village	1	8	143	Oui	CSI Mpoumako	N2
20	ILOLO	Petit village	1	18	169	Oui	CSI Mpoumako	Piste Est
21	INTSELE	Petit village	1	4	147	Oui	CSI Mpoumako	N2
NGABE 4 VILLAGES								
22	NGABE	Grand village	1	0	233	Oui	CSI Ngabé	Piste Est
23	BOKABA	Petit village	1	7		Non	CSI Ngabé	Fleuve
24	MAFAMBA	Grand village	1	12	245	Oui	CSI Ngabé	Fleuve
25	SEDEC	Petit village	1			Non	CSI Ngabé	Fleuve
ODZIBA 5 VILLAGES								
26	DIEU LE VEUT	Moyen village	1	8	92	Oui	CSI Odziba	N2
27	DZIO DZIO	Moyen village	1	36	136	Oui	CSI Odziba	Piste Ouest
28	IMPOH	Moyen village	1	12		Oui	CSI Odziba	Piste Ouest
29	MAKEMBA	Petit village	1	25		Oui	CSI Odziba	Piste Est
30	BELLE VIE	Petit village	1	9	109	Oui	CSI Odziba	Piste Ouest

Table 11 SES Indicator - Scoring of variables to create SES proxy for the population of Ignié Ngabé.

	Score
Energy Source	
Petrol Lamps	1
Generator	2
Electricity	3
Ownership of the following items	
Bicycle	1
Motorbike	2
Car	3
Television	1
Water Source	
River	1
Piped water	4
Rain Water	1
Open Well	1
Source non aménagée (unimproved source)	1
Borne fontaine (Hydrant)	3
Well with hand pump	2
Deep well	4

Image 1 Typical selection of medications that can be bought in the street in Ignié Ngabé



Image 2 Focus Group, Ignié Ngabé, March 2011



Image 3 KAP Interview, village of Impé, Ignié Ngabé, April 2011



Image 4 CSI Ignié, Ignié Ngabé



Image 5 Example of typical road in Ignié Ngabé



Image 6 Example of typical road in Ignié Ngabé



Image 7 Typical dwelling in Ignié Ngabé

