Kinshasa's information platform to accelerate modern contraceptive use

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Abstract

The DRC is the largest francophone country in sub-Saharan Africa, with a TRF of 6.6. Interest is keen within the current government and international donors to increase modern contraceptive prevalence, currently 7.8% (2013). But how? Since 2012 Kinshasa has developed one of the most advanced information platforms in sub-Saharan Africa for programmatic planning. Surveys in 2012 and 2013 used smartphones and open – source GIS to map the distribution of health facilities providing contraception in Kinshasa and identified underserved neighborhoods within 35 health zones. The 393 structures offering contraception have an average of 3.6 methods in stock: (in descending order) condoms, injectables, pills, IUDs, cycle beads, and implants. However, 11.2% did not have a staff trained in FP; and 17.6% did not have a basic information system. PMA2020 surveys have shown a promising upward trend in modern contraceptive use from 14.2% (DHS 2007) to 18.2% (late 2013) and 21.8% (mid 2014).

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Background

The Democratic Republic of the Congo (DRC) represents one of the greatest demographic challenges of our time. With a natural increase of 2.8% a year, the Sub-Saharan African country's population of more than 69 million inhabitants will double by 2037. The problems of rapid population growth are nowhere more evident than in Kinshasa, the DRC's capital. The province of Kinshasa has an estimated current population of approximately 10 million living in an expanse of 3,847 square miles.

Similar to other francophone countries in West and Central Africa, the DRC has high fertility (TFR of 6.6), low modern contraceptive prevalence (7.8%), and high unmet need for family planning (24%) (2013 DHS), The social, economic, and political conditions in this country since independence in 1960 have resulted in high maternal and infant mortality rates, in addition to stunting among children that survive. The DRC government has recognized the potential benefits of increasing modern contraceptive use at multiple levels: the national, community, family, and individual. The signs of increased political will to support family planning have encouraged international donors to reconsider further investment in family planning programs in the DRC, with the aim of increasing modern contraceptive prevalence.

Although the needs for family planning span the entire country (which is the size of Western Europe), key family planning stakeholders have established a strategy of using Kinshasa for "test of concept" to implement key interventions and monitor results. A recent initiative to increase contraceptive access in Kinshasa yielded measurable improvements in the percentage of FP sites that had more than three contraceptives in stock, at least one person trained in family planning, and a basic information system. An urban CBD program was launched in mid-2014 and will be accompanied by innovative demand creation activities. A pilot introduction of Sayana Press is planned for 2015.

This article focuses on the data available to drive the intervention process and measure results in near real time. As the country that ranks 186 of 187 nations on the Human Development Index, the DRC has rarely been in the forefront of programmatic innovation. This article reviews the rich evidence base that has been built in less than two years to guide family planning programming in a vast city of over 10 million people.

Methods

The results presented herein are from two main sources:

- **A facility-based survey of the universe of sites offering contraceptive services** in Kinshasa, repeated in 2012 (using conventional paper questionnaires) and 2013 (using smart phones for data collection and transmission). In 2012, the research team attempted

to identify all health facilities from lists available by the national reproductive health program (PNSR) and local health zone officials. In 2014 implementing partners offering family-planning services were able to add additional sites to the list. Interviewers collected information from each site on key characteristics of that site.

The survey conducted in 2012 used conventional paper questionnaires, while in 2013 our team used OpenDataKit, an open – source smartphone-based application for data collection and transmission. The GPS coordinates of all surveyed structures where collected (through hand-held devices in 2012, then using ODK in 2013) and joined to the FP indicators collected at the structure level. This enabled us to (a) create multivariable maps displaying level of accessibility to FP services throughout Kinshasa, (b) highlight underserved neighborhoods and plot optimal site-selection for either additional structure support or new community – based distribution points, and (c) gather all survey data in a comprehensive, interactive map, supported by Google Earth, that has since been used for needs assessment, FP services monitoring and advocacy.

- **Population-based survey among married women of reproductive age in Kinshasa in Kinshasa**, using an innovative survey technique developed under the project PMA2020; it focuses exclusively on family planning, uses smart phones for data collection and transmission, and employs resident enumerators rather than a team of interviewers. Two rounds of the PMA2020 survey have been conducted to date: in late 2013 and mid-2014. Two-stage sampling was used. In the first stage, 60 of 335 *quartiers* were randomly selected using probability proportional to the size. All households in the 60 selected quartiers were mapped. In the second stage, 30 households per *quartier* were randomly selected, and all women of reproductive age in the household were interviewed. Data were collected using Smartphones (Alcatel OneTouch M'pop) and transferred to a FormHub server. This procedure yielded 1,778 households (2013) and 1974 households (2014). Interviews were completed with a total of 2197 women (2013) and 2879 women (2014). The refusal rate was 2.1% and 4.3% in the two rounds of data collection, respectively.

Results

The facility-based surveys yielded useful information about the availability of contraception throughout the city of Kinshasa:

- The 393 facilities included 301 health centers, 72 hospitals, and 20 clinics.
- The methods most frequently in stock were (in descending order) the condom, injectable, pill, IUD, cycle beads, and implants.
- On average, sites head to persons trained in family-planning.

- To achieve a rating of "3-stars," a facility needed to have at least three contraceptive methods, at least one person trained in family-planning, and a basic information system on the contraception distributed.
    - The percentage of sites achieving a three star rating increased from 43% (2012) to 64% (2013).
    - Clinics, although the least numerous, had a higher percentage of three-star sites (85%) then did hospitals (72%) or health centers (60%).

In addition, the GIS data provided the basis for creating multiple maps that described the spatial distribution (and thus physical access to) FP facilities in Kinshasa, including:

- a color-coded map of the number of health facilities per 100,000 population in each of the 35 health zones of Kinshasa, allowing for quick identification of underserved areas (see figure 1);
- a map showing the spatial distribution of FP sites in the 35 health zones of Kinshasa, classified by level of quality;
- a map with buffers around each health facility providing FP services, illustrating the large areas within Kinshasa that are underserved with FP services;
- Maps of each of the 35 health zones, illustrating the placement of existing services and gaps needing to be filled (see figure 2).

In 2012 and 2013, FP service delivery accelerated. As described elsewhere, the Kinshasa Family Planning Coalition was formed in December 2012, consisting of some 12 technical organizations involved in family-planning services delivery and for international donors that support family planning activities in Kinshasa. This group systematically worked to improve contraceptive access, starting in early 2013. The survey conducted in late 2013 indicated measurable improvements in access to contraception throughout the city of Kinshasa. However, the objective of increasing contraceptive access is to increase the modern contraceptive prevalence rate (mCPR).

The data from PMA2020 surveys provide the means to track mCPR annually, if not more frequently. Key findings from these surveys conducted in late 2013 and mid-2014 include the following:

- Compared to an mCPR of 14.2% (as of the DHS 2007), mCPR increased to 18.2% (late 2013) and 21.8% (mid 2014).
- Historically in the DRC, the use of traditional methods outstripped the use of modern methods among all users; however as of mid-2014 this trend changed, with mCPR of 21.8% compared to 13.9% traditional use.
- Historically in the DRC, the economist the leading modern method. As of mid-2014, the implant had moved into second place among married women of reproductive age. The

condom remains by far the most widely used method among nonmarried women were sexually active.

Discussion

Kinshasa represents a natural experiment on the effects of strengthening family planning program. The use of state-of-the-art data collection techniques and GIS mapping provide immediate feedback on multiple aspects of supply and demand in this environment. Although the findings cannot be used to demonstrate cause-and-effect, they have proven extremely useful in creating awareness among decision-makers and providing program leadership with guidance for dancing family planning in this city of 10 million people.

Figure 1.

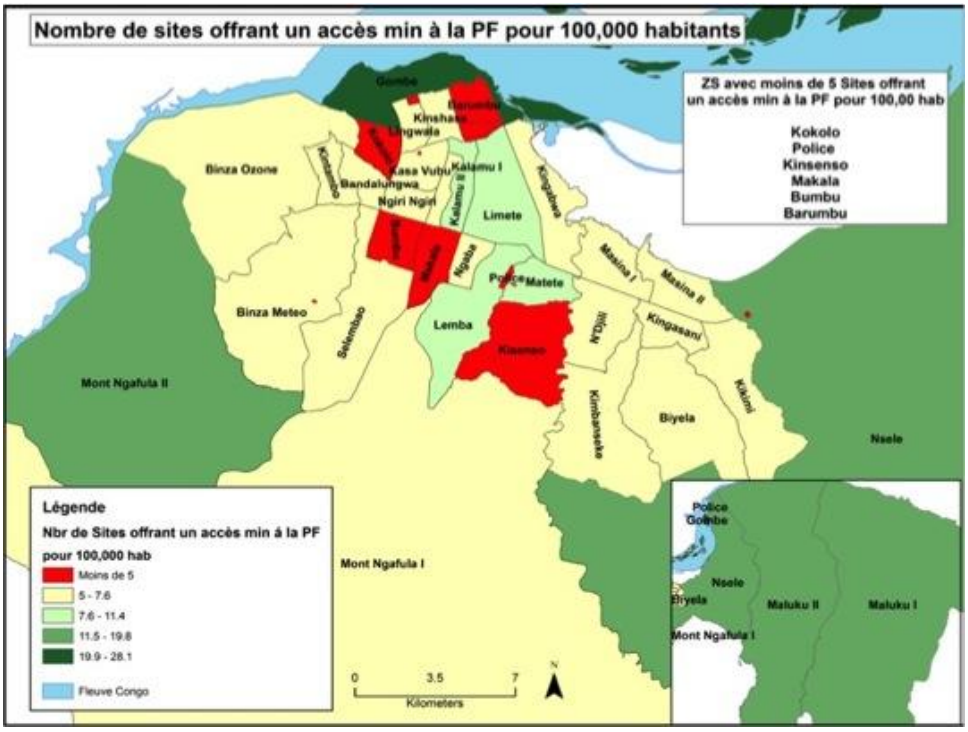
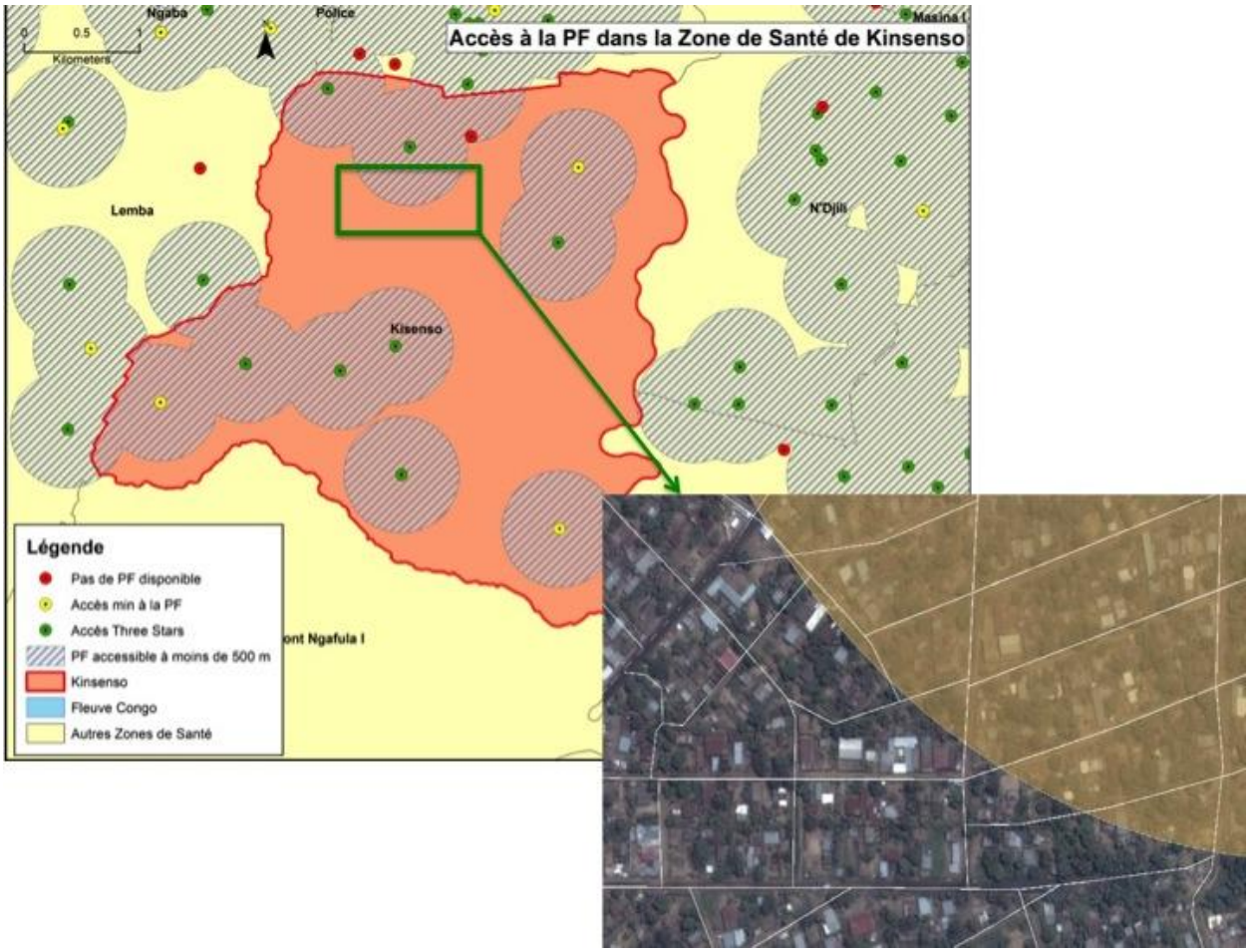

Nombre de sites offrant un accès min à la PF pour 100,000 habitants
ZS avec moins de 5 Sites offrant un accès min à la PF pour 100,00 hab
Kokolo
Police
Kinsenso
Makala
Bumbu
Barumbu
Gombe
Kinshasa
Lingwala
Binza Ozone
Kasa Vubu
Bandalungwa
Ngiri Ngiri
Kalamu I
Kalamu II
Limete
Kingabwa
Masina I
Masina II
Ngaba
Matete
Binza Meteo
Lemba
Kisenso
Selembao
Mont Ngafula II
Kingasani
Kikimi
Biyela
Nsele
Kimbanseke
Mont Ngafula I
Légende
Nbr de Sites offrant un accès min à la PF pour 100,000 hab
Moins de 5
5 - 7.6
7.6 - 11.4
11.5 - 19.8
19.9 - 28.1
Fleuve Congo
0
3.5
7
Kilometers
N
Police
Gombe
Nsele
Biyela
Maluku II
Maluku I
Mont Ngafula I

Figure 2.


Accès à la PF dans la Zone de Santé de Kinsenso
Ngaba
Police
Masina I
Lemba
N'Djili
Kisenso
Légende
Pas de PF disponible
Accès min à la PF
Accès Three Stars
PF accessible à moins de 500 m
Kinsenso
Fleuve Congo
Autres Zones de Santé