

# BMJ Open Does universal health coverage reduce out-of-pocket expenditures for medical consultations for people living with HIV in Senegal? An exploratory cross-sectional study

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## ABSTRACT

**Objectives** In Senegal, a national health coverage system named Couverture Medicale Universelle (CMU) has been under development since 2013; its impact on out-of-pocket (OOP) expenses for people living with HIV (PLHIV) remains unknown. Our objective was to assess the impact of the national health coverage system on health expenses for PLHIV by measuring the OOP amount for a routine consultation for various categories of PLHIV, in Dakar and different regions in Senegal, viewed from the patients' perspective.

**Design, setting and participants** Cross-sectional survey in 2018 and 2019 using a face-to-face questionnaire with PLHIV: 344 adults followed up at Fann Regional Centre for research and training in clinical treatment in Dakar; 60 adult men who have sex with men (MSM) in 2 hospitals in Dakar and 7 facilities in the regions; and 130 children and adolescents (0–19 years) in 16 care facilities in the southern regions. We have calculated the total price of the consultation and associated prescriptions along with the patient's OOP medical and transportation contributions. The average amounts were compared using the Student's t-test.

**Results** All patients are on antiretroviral treatment with a median duration of 6 years, 5 years and 3 years for adults, MSM and children/adolescents, respectively. The percentage of people who have health coverage is 26%, 18% and 44% for adults, MSM and children. In practice, these systems are rarely used. The OOP amount (health expenses+transportation costs) for a routine consultation is €11 for adults and children, and €32.5 for MSM.

**Conclusion** The number of PLHIV with coverage is low, and the system's effectiveness remains limited. Currently, this system has proved ineffective in implementing free healthcare, recommended by WHO since 2005.

## INTRODUCTION

Since the 2010s, there has been international consensus in favour of universal health coverage (UHC) for low-income and middle-income countries.<sup>1</sup> UHC is considered the most effective tool for reducing inequalities

## Strengths and limitations of this study

- Data collection took a comprehensive approach to record the details of the different care prices and the amount of direct payments paid by the patient for a routine consultation.
- The survey was administered face to face by social workers, community mediators or men who have sex with men (MSM) association members, immediately following the routine medical consultation, to avoid memory biases.
- The calculated care price is based on the official rates charged by the care structures, out-of-pocket payments correspond to the expenses shouldered by patients.
- This study was conducted with a small sample of people (534 persons) and care sites (25), in response to an informed choice to test the health coverage mechanism's impact for three categories of target populations (adults, adult MSM, children) and in different contexts (capital and secondary cities).
- A much broader study on a random sample would be needed to accurately reflect the impact of the medical coverage mechanism on the amount of out-of-pocket medical expenses for people living with HIV and to document clinical impacts.

and promoting access to care.<sup>2</sup> Its three principles are to leave no one behind, guarantee access to a broad range of quality services, and remove financial barriers for users.<sup>3</sup> Since 2012, most countries on the African continent have committed to implementing UHC.

At the same time, the decline in international funding for HIV/AIDS, which began in 2012,<sup>4</sup> led UNAIDS to support States in their search for domestic funding in order to limit their dependence on development assistance for HIV/AIDS.<sup>5</sup> Incorporating HIV prevention and care services into the

services provided through UHC has been presented as an opportunity to finance HIV-related health expenses.<sup>6</sup> In practice, no clear strategies to actually include them have been identified,<sup>7</sup> with each country designing and experimenting based on its healthcare system's organisation. Therefore, the impact of health coverage systems on care for people living with HIV (PLHIV) needs to be carefully documented.

### The current Senegalese context

In Senegal, the health coverage system is still being developed. In 2013, the State rolled out a mechanism called Couverture médicale universelle (CMU or Universal Medical Coverage in English) that aims to expand and federate the various pre-existing coverage mechanisms and to provide health coverage to the entire population. CMU is mainly based on membership in health mutuelles and free access to care for certain populations and some diseases, including HIV. CMU supplements the previous system, comprised of various care mechanisms, mainly for formal-sector employees and targeting civil servants and private-sector employees. Private insurance companies also offer health insurance for individuals and businesses, but this sector remains marginal.

In 2020, Senegal numbers over 600 community-based health mutuelles that are relatively functional.<sup>8</sup> The State subsidises 50% of the amount of their annual contributions. Other subsidies for the neediest people (family security grants for the poorest households; equal opportunity cards for people with disabilities; and CMU-élèves, coverage for school children) also entitle them to a free membership in health mutuelles. Some free plans cover people over age 60 (Plan Sésame), children under 5, pregnant women (caesarean sections) and the treatment of certain pathologies (dialysis). Medical services provided through free access initiatives are variable. The Plan Sésame for the elderly covers the cost of consultation tickets, paraclinical tests (except scans), and certain essential generic medicines, but specialty medicines are not covered. For children under 5 years, the covered package depends on the rank of the health facilities. At the health post and health centre level, consultation tickets, some essential generic medicines provided by the state and vaccinations are covered. In regional hospitals, emergency consultation tickets are covered, but complementary exams (analyses, X-rays) and drugs are not. In practice, these systems do not function uniformly across the nation. This free access offers a range of medical services that supplement other previously offered free services to treat HIV infection and tuberculosis.

In Senegal, it is estimated that about 41 000 people are living with HIV, of whom 80% have been tested and 71% are taking antiretrovirals (ARVs).<sup>9</sup> Since 2003, ARV drugs and some biological tests (viral load measurement and CD4 count) have been free, but a portion of the costs for HIV-related care (consultations, biological tests, drugs other than ARVs and hospitalisations) remains the patient's responsibility. Although one-time initiatives

have tried to incorporate these care services into the CMU system, these measures were not expanded on a national scale. The current CMU system should cover these medical expenses for certain populations (children under 5, people 60 years and older) and those with health coverage (health mutuelles, work-related insurance).

The goal of our study was to assess the health coverage system's capacity to facilitate access to care for PLHIV in Senegal, by focusing on its impact on reducing health expenditures for PLHIV, viewed from the patients' perspective. Specifically, we measured the amount of health expenditures during a routine consultation; we then assessed the impact of the CMU system on the out-of-pocket amount for different categories of PLHIV in Dakar and other regions in Senegal.

The study was conducted as part of the multicountry UNISSAHEL programme, funded by the Agence française de développement and implemented by the Institut de Recherche pour le Développement.

## METHODS

### Study site and population

Cross-sectional surveys were conducted between May 2018 and June 2019 in 25 of Senegal's 183 HIV treatment sites. The 25 sites were selected in response to an informed choice to explore the health coverage mechanism's impact in different settings (capital and secondary cities; type of care facility), for three categories of target populations. Surveys involve three groups of PLHIV (see table 1): (1) adults followed up in a specialised service delivery point for HIV case management in Dakar (Fann Regional Centre for research and training in clinical treatment (CRCF)); (2) adults self-identifying as men who have sex with men (MSM), monitored in two hospitals in Dakar and seven facilities in six regions in Senegal (Thiès, Saint Louis, Louga, Tambacounda, Kaolack and Ziguinchor) and (3) children followed up in 16 health centres and regional hospitals in Senegal's five southern regions (Kédougou, Kolda, Sédhiou, Tambacounda and Ziguinchor).

The survey was offered on a voluntary basis to the first 10 patients in for a consultation that day. All participants were given a short introduction to the study and given an opportunity to ask questions before providing oral consent to participate. Refusals to participate in the survey were exceptional.

### Data collection

The survey is based on a short questionnaire that makes it easy to record the details of the care prices and the amount of direct payments made by the patient for a routine consultation (see online supplemental file). Information was collected by social workers, community mediators or MSM association members, immediately following a routine medical consultation to avoid memory biases. The routine medical consultation is linked to drug replenishment at varying intervals depending on

**Table 1** Sociomedical characteristics, medical costs, percentage of health coverage beneficiaries and out-of-pocket (OOP) contributions for three populations of PLHIV in Senegal

	Adults	Adult MSM	Children/adolescents
N	344	60	130
F/M ratio	237/107	0/60	53/77
Average age	46	30	9
Min.–Max.	18–74	18–51	1–18
No of years of ARV therapy	6	5	3
Min.–Max.	1–20	1–17	1–12
Average medical cost (€)	24	35	15
Min.–Max.	7.6–176	1.5–130	0–63
Av. med. cost: Females (€)	25.6	–	–
Av. med. cost: Males (€)	21.5	–	–
Beneficiary of a health coverage plan (%)	90 (26%)	11 (18%)	57 (44%)
Female n (%)	57/237 (24%)	–	–
Male n (%)	33/107 (31%)	–	–
Insurance* n (%)	34 (10%)	5 (8%)	1 (<1%)†
Mutuelles n (%)	18 (5%)	6 (10%)	34 (26%)
Plan Sésame n (%)	38 (11%)	na	na
Free for 0–5 years n (%)	na	na	23 (18%)
Who pays?			
Association	0	0	0
Healthcare facility	70%	5%	45%
Health coverage	3%	5%	10%
Patient themselves	27%	90%	45%
Average OOP medical expenses (€)	6.7	31	6.5
Min.–Max.	0–87	1.5–130	0–38
Av. OOP: Females (€)	7.3	–	–
Av. OOP: Males (€)	5.2	–	–
Average transportation expenses (€)	4.3	1.5	4.5
Min.–Max.	0.3–49	0–18	0–6
Average total out-of-pocket expenses (€)	11	32.5	11

\*Insurance: Civil servant scheme, Institut de Prévoyance Maladie, Private Insurance.

†This individual belongs to a mutuelle and has insurance.

ARV, antiretroviral; na, non-applicable; PLHIV, people living with HIV.

the patient's clinical condition, how the treatment site is organised, and drug inventory status. It usually happens every quarter; once or twice per year, it is an opportunity to conduct biological tests for follow-up. Depending on the patient's clinical condition, the physician may prescribe further investigations.

The collected information included: socio-medical data (age, sex, number of years on ARV therapy); information about any affiliation with an insurance plan related to a disease or free access; the type of medical services and their price on the day of the consultation; the amount for round-trip transportation expenses; whether there were informal payments and their amount; and reasons for possible non-use of the health coverage system. Medical expenses were differentiated: the consultation, biological tests, medical imaging, prescribed drugs (in addition to

ARVs), and any other medical expenses. For each type of expense, the patient had to specify who paid for it (the patient themselves, the treatment facility, an association, a mutuelle or an insurance plan).

We then used these data to calculate the total price of the consultation and the patient's out-of-pocket contribution. The calculation of the medical consultation's price did not include ARVs, viral load measurement and CD4 count, which are free for patients. It includes expenses related to purchasing the consultation voucher, drug prescriptions, biological tests and medical imaging. Travel expenses were not included when calculating the average medical cost. The out-of-pocket amount is defined as 'the portion of the health expense that households have to pay for directly for care, after health insurance, the state or supplementary health insurance organisations have made

contributions'.<sup>10</sup> Calculated costs are based on actual expenses incurred by the patient. The reported amounts correspond to the expenses shouldered by patients. Costs are considered from the patient's perspective. These costs are not related to any financial coverage scheme or status.

Costs have been measured in FCFA (XOF) at the time of the interview and converted into euros (€) using the fixed exchange rate of €1=655.957 FCFA.

### Statistical analyses

The average costs and out-of-pocket contributions for the various CMU plans have been compared using the Student's t-test and adjusted for unequal variances (Satterthwaite).

### Ethics considerations

"The protocol (SEN18/20 : "UNISSAHEL-Sénégal Couverture Universelle Santé au Sahel") was approved by the National Ethics Committee for Research in Health in Senegal on 2 July 2018 under no. 0000053/MSAS/DPRS/CNERS and 18 July 2019 under n°0000118/MSAS/DPRS/CNERS."

### Patient and public involvement

The aim of the study, its design, and the study instruments were closely designed and developed by a team of community actors, patient association members, and researchers. The survey was administered by community actors and underwent pilot testing with patients; feedback from these pilot interviews informed revisions. Findings from the research have been disseminated back to members of the main PLHIV associations in the country.

## RESULTS

### Population characteristics

The main characteristics of the three study populations are presented in [table 1](#). The study included: 344 adult patients (≥18 years), including 237 women (69%), averaging 46 years old (min. 18–max. 74) with a median of 6 years of ARV therapy (min. 1–max. 20); 60 MSM, averaging 30 years old (min. 18–max. 51), with a median of 5 years of therapy (min. 1–max. 17) and 130 children and adolescents, including 53 girls (41%), averaging 9 years old (min. 1–max. 18), with a median of 3 years of therapy (min. 1–max. 12).

### Empirical data on the average care price of a consultation

The average care price for a routine consultation is, respectively, €24 (min. 7.6–max. 176) for adults followed up at CRCF; €35 (min. 1.5–max. 130) for MSM and €15 (min. 0–max. 63) for children/adolescents (see [table 1](#)).

### Proportion of people with social health coverage

The percentage of study participants who have health coverage is 26% for adults from CRCF, 18% for MSM and 44% for children/adolescents. In very rare instances, there are individuals (seniors, children) who are beneficiaries of more than one system (mutuelles+age-based

free-access initiatives). Close to 10% of the adults followed up at CRCF (34 individuals) had work-related insurance (civil servant scheme, the Institut de Prévoyance Maladie (a mandatory health insurance plan for private-sector employees) and private insurance); 5% (18 individuals) belonged to a community-based health mutuelle; 11% (38 individuals) were at least 60 years old and eligible for Plan Sésame; and 74% (254 individuals) had no health coverage. Among MSM, 8% (5 individuals) had work-related insurance; 10% (6 individuals) were members of a community health mutuelle; and 82% (49 individuals) had no health coverage. For children and adolescents, less than 1% (only 1) had work-related insurance through their parents' employment; 26% (34 children) belonged to a health mutuelle; 18% (23 children) were under age 5 and could theoretically enjoy age-related free access; and 56% (73 children) had no health coverage.

### Who pays?

In practice, expenses associated with a consultation are distributed among several actors in various ways: for adults followed up at the CRCF in Dakar, 70% of the amount is borne by the structure itself, which covers the consultation and some biological tests, with the patient's share accounting for 27% of the total amount and health coverage plans only covering 3% of the cost. For MSM followed up in the country's various facilities, patients themselves cover 90% of the amount with the healthcare facility covering 5% of expenses and the health coverage plan (mutuelle, insurance) covering 5%. For children and adolescents in decentralised sites, 45% of the total amount is covered by the healthcare facilities, 10% by a health coverage plan (health mutuelle, free access for 0–5 years) and 45% by families.

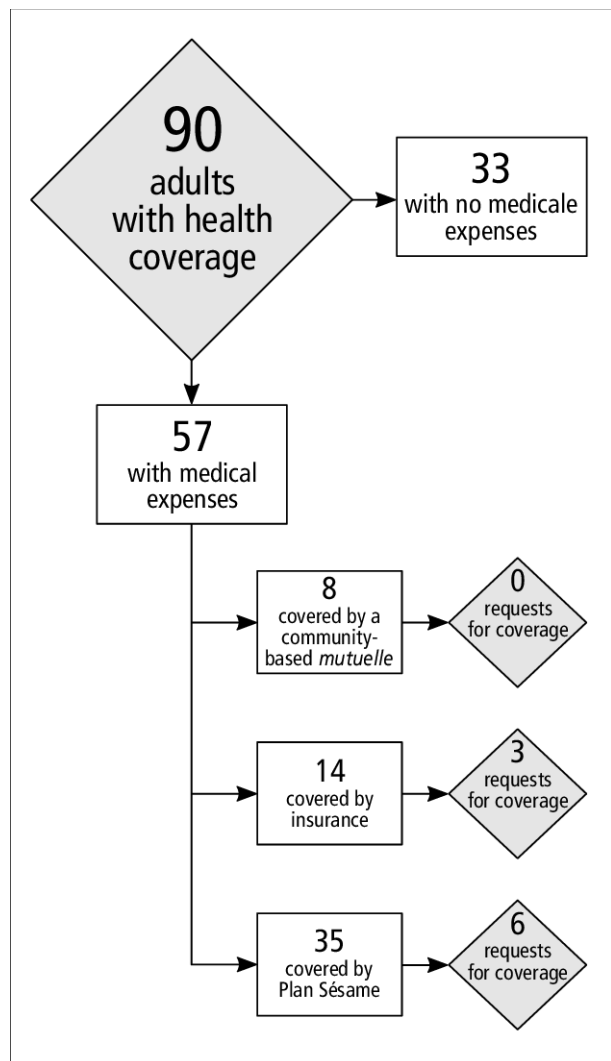
### Average out-of-pocket amount for a consultation

The average out-of-pocket amount for a routine consultation is, respectively, €6.7 (min. 0–max. 87) for adults followed up at CRCF; €31 (min. 1.5–max. 130) for MSM and €6.5 (min. 0–max. 38) for children/adolescents.

### Transportation expenses and total out-of-pocket amount

Transportation expenses have been calculated separately. This amount varies greatly depending on the care sites' location (urban or rural areas). The average amount spent on transportation to get to the healthcare facility is €4.3 for adults followed up at CRCF; €1.5 for MSM; and €4.5 for children and adolescents. This expenditure is not covered by any support system or health coverage plan.

This expenditure—€1.5–4.5 per consultation—is added to the out-of-pocket medical expense; it cannot be reduced and is unavoidable. For some patients, paying for transportation is the first barrier to having a consultation. Overall, the average total out-of-pocket amount ranges from €11 to €32 for a routine consultation.



**Figure 1** Use of health coverage systems by PLHIV followed up at Fann regional Centre for research and training in clinical treatment. PLHIV, people living with HIV.

Only 4% of adults (14/344) and 1.5% of children/adolescents (2/130) have a total out-of-pocket amount of zero; all adult MSM pay an out-of-pocket expense.

#### Use of health coverage plans by adults followed up at CRCF

Among the 344 individuals followed up at CRCF, 31% (33/107) of men and 24% (57/237) of women have medical coverage. Average medical expenses appear to be slightly higher for women than men (women: €25.6; men: €21.5). The out-of-pocket amount for women (€7.3) is 39.5% higher than that of men (€5.2) (cf. table 1).

In fact, not all people who have health coverage systematically use it (see figure 1). For the 90 individuals with health coverage, 33 had no medical expenses beyond those covered by the healthcare facility, while 57 had medical expenses. Among those who had medical expenses, 8 people were covered by a community-based mutuelle and 14 by private insurance; and 35 were age 60 years and older and beneficiaries of the Plan Sésame. Only three individuals covered by an insurance plan and six by

Plan Sésame—or 9 of the 57 people (16%)—resorted to these plans to obtain partial or full reimbursements of the incurred costs.

Users explain their non-use of reimbursements citing: (1) complex procedures (the need to travel to procure a letter of guarantee from the head office of the mutuelle or insurance company before accessing care); (2) the geographical distance between the insurance plans' offices and the care delivery point (resulting in wasted time and additional transportation costs); (3) the principle of care delivery through the health pyramid (health mutuelles only cover care performed in health centres while PLHIV are often followed up in specialised reference sites); (4) agreements that limit coverage by mutuelles to certain nearby sites (while PLHIV often receive follow-up far from their homes to avoid being recognised) and (5) the fear that the nature of their condition will be disclosed, particularly in health mutuelles. These individuals believe that a direct payment is often simpler and ultimately less costly in terms of travel and wasted time.

Added to this for Plan Sésame beneficiaries are the non-reimbursement of brand-name drugs (not covered by the plan) and having to resort to private pharmacies to purchase drugs that they should have received for free at the hospital if the drugs had been available. Essential medicine shortages in hospital pharmacies have a similar effect on mutuelle members, forced to purchase products that are only covered at 50% in private pharmacies, compared with 80% in hospitals.

These malfunctions dissuade users from taking on administrative procedures that they find complex and with uncertain benefit.

#### Impact of using health coverage systems on the out-of-pocket amount for children's and adolescents' consultations

For the 130 children/adolescents, medical coverage was provided through two age-based mechanisms: applying free access for those age 0–5 years (32 children) or belonging to community health mutuelles (34 children) (see table 2). We were able to compare the average medical expense amount and out-of-pocket contributions according to the expense coverage mechanisms.

The average medical expense was €16 (95% CI 11 to 21) for children who belong to a health mutuelle and €14 (95% CI 12 to 16) for those with no mutuelle; the average medical expense was €16 (95% CI 13 to 20) for those covered by free access for children 0–5 years and €14 (95% CI 11 to 16) for those not covered by free access for children 0–5 years. The observed gaps in average medical costs for the beneficiary and non-beneficiary children of an expenditure coverage mechanism are small and statistically insignificant; they reveal no increase in medical prescriptions related to the expenditure coverage mechanism. Overall, for each group of children, out-of-pocket contributions are between €6.1 and €7.6 per consultation; the observed gaps in out-of-pocket contributions are statistically non-significant and

**Table 2** Amounts of medical costs and out-of-pocket contributions for children and adolescents, according to their health coverage

Children-adolescents			Total	Student's t-test (p value, bilateral)
Mutuelle n (%)	Beneficiaries	Non-beneficiaries		
n (%)	34 (26)	96 (74)	130 (100%)	
Average medical cost (€)	€16 (IC 11–21)	€14 (IC 12–16)		0.55
Average out-of-pocket medical expenses (€)	€6 (IC 3–9)	€7 (IC 5–9)		0.56
Free-access initiative	Beneficiaries*	Non-Beneficiaries†		
n (%)	32 (25)‡	98 (75)	130 (100)	
Average medical cost (€)	€16 (IC 13–20)	€14 (IC 11–16)		0.27
Average out-of-pocket medical expenses (€)	€7 (IC 4–10)	€6 (IC 5–8)		0.50

\*Beneficiaries of the free-access initiative granted to children 0–5 years.

†Children age 5 years and older.

‡For these individuals, 23 are only beneficiaries of free access for children 0–5 years, while nine also belong to a mutuelle.

do not reflect the impact of expenditure coverage mechanisms on the out-of-pocket contribution from children's and adolescents' families.

## DISCUSSION

### Limitations of the study

This exploratory study was conducted with a small sample of people and care sites, in response to an informed choice to test the health coverage mechanism's impact—effectiveness, efficacy—for several categories of target populations and in different urban contexts. Implementation of the health coverage mechanism is recent in Senegal (2013), and significant regional disparities are still observed. Therefore, study results cannot be extrapolated for the entire country. Nevertheless, the information presented here provides, for the first time, an estimation of the out-of-pocket expenditure that PLHIV must shoulder for a routine consultation.

### Low percentage of PLHIV who have medical coverage

This study shows a low percentage of PLHIV who have medical coverage among those surveyed. For children/adolescents, the observed rate of membership in community-based mutuelles (26%) is likely associated with the promotional activities led by the NGO Family Health International for several years, as part of the CMV+ (Health Coverage for PLHIV) programme in the southern region where the survey was conducted.

For adult PLHIV, the study found a low rate for membership in community-based mutuelles (from 5% to 10%). The percentage of adults covered by an insurance plan is lower than that usually described in the country (≈17% of people).<sup>11</sup>

The low PLHIV membership rate is related to:

- ▶ The fear of revealing the nature of their illness due to lack of confidentiality in the management of community-based mutuelles: the guiding principle for mutuelles promoted in Senegal rests on creating

one mutuelle for each rural community, guided by the slogan 'one village, one mutuelle'. The same principle operates in cities, where mutuelles are associated with neighbourhoods. The mutuelles are managed by members of the village or neighbourhood community. Also, any frequent or significant medical consumption will be immediately apparent to the mutuelle's manager, whose indiscretion could result in disclosing the diagnosis of the disease within the community.

- ▶ A strategy used by many managers of community-based mutuelles involves dissuading those with chronic diseases—such as PLHIV—from joining under the pretext that seeking reimbursements too frequently threatens the mutuelle's financial stability. This selection strategy has been brought up before in Senegal<sup>12</sup> and was just recently described in Kenya, especially for pregnant women living with HIV.<sup>13</sup>

Among PLHIV followed up at CRCF, this study shows that a higher percentage of men than women have health coverage (31% vs 24%). We do not have information for comparison at national level. This observation suggests that more men than women use social protection systems (sickness, retirement), due to their greater integration into the formal economic sector.

### Low level of reimbursements

The low percentage of PLHIV who have health coverage, combined with the low use of existing mechanisms, means that patients must cover the bulk of expenses. Ultimately, the CMU mechanism's impact on covering health expenses for PLHIV appears low. The majority of expenses are covered by patients (from 30% to 80%), and the health coverage system's contribution remains marginal (from 1% to 8%). Complex procedures, limited services, and social risks related to a possible disclosure of HIV status make this mechanism unattractive and poorly adapted to the needs of PLHIV.

### High out-of-pocket contributions

The average out-of-pocket medical contribution for a routine consultation is between €6.5 and €31. It is lower for adults followed up at CRCF and for children: the adults enjoyed free access to State-funded biological tests at the time of the survey in CRCF; the average medical cost is lower overall for children, which translates into lower out-of-pocket costs compared with adults. The surveyed MSM have a higher average out-of-pocket amount because most of them had no access to free biological tests, none in our survey are old enough to use the Plan Sésame, and they are also less likely to apply for health coverage through the system for fear of being identified. The gaps between these expenses mainly reflect differences in physicians' practices relative to the availability of drugs and additional tests, which varies depending on the facility's level and location.

In addition to the out-of-pocket medical costs, there are transportation expenses. The total out-of-pocket contribution for a routine consultation (€11–€32) is very high in proportion to patients' and households' resources. In Senegal, the standard average daily expense is €2.12/person/day; moreover, approximately 38% of the population lives on €1.39/person/day, which is the poverty line calculated in 2019.<sup>14</sup> Therefore, the average out-of-pocket amount for a routine consultation is equal to 8–23 days of daily expenses. This expense competes with basic needs, especially food, which usually consumes half of household resources. For most PLHIV, collecting the amount needed to pay for transportation and medical expenses poses a challenge that the health coverage mechanism, in its current state of development, is unable to absorb.

### Complete free access to HIV medical care and UCH

In 2005, WHO recommended application of complete free access to drugs and care for PLHIV living in resource-limited countries<sup>15</sup>; this free access was considered a pillar of the public-health approach aimed at generalising access to HIV treatment.<sup>16</sup> In practice, like most other countries in sub-Saharan Africa, this recommendation was only partially applied in Senegal—only ARVs, medical consultations, and some biological tests were provided free of charge. No strategy has been considered or piloted to successfully offer free access to care. However, various studies on several countries have warned about the magnitude of patients' out-of-pocket contributions,<sup>17 18</sup> their impact on long-term follow-up, and how they increase at the onset of non-communicable diseases (cancer, hypertension and diabetes).<sup>19</sup> UNAIDS (Joint United Nations Programme on HIV/AIDS) has warned that 'out-of-pocket expenses are a major barrier (...), to PLHIV being retained in treatment and care'<sup>20</sup>; impact on attrition, interruption and discontinuation of treatment; incomplete or subquality treatment; and delays in initiating ARV and/or TB treatment when needed all have important programmatic consequences as well and highlight the urgent need for adaptation to resolve these barriers to care. Although ARVs are now

available in all countries, the financial barrier to accessing care remains. Faced with reduced international funding, HIV-programme managers are reserving funding to cover ARV drugs, and hoping that UHC mechanisms can mitigate the lack of resources. But roll-out of UHC systems is recent, their funding mechanisms are far from secure in the long term, and their promoters still question whether they can cover chronic diseases. In these conditions, transferring free access to HIV care to UHC mechanisms is a misleading 'good solution'. Even if desirable, it will still take many years to include HIV control in UHC.<sup>7</sup> In the meantime, with no specific funding, patients—and far often more women than men—and their families are still the ones who must take on expenses that diminish their living conditions, leading to treatment interruptions and emergence of viral resistance.<sup>21</sup> In the immediate future, implementing a mechanism to cover medical care and support for transportation expenses for PLHIV is a must. Free access to HIV-related care should compensate for the lack of coverage, while UHC systems become functional and efficient, with the goal of safeguarding individual and collective health, in accordance with WHO recommendations.

### CONCLUSION

The Senegalese government has been working to provide free, nationwide HIV treatment since 2003. This study reveals how high the out-of-pocket contribution is for patients and their family members who help them: the price of just a routine consultation, a required appointment to resupply ARVs, is equivalent to several days' daily expenses. This medical expense competes with other vital expenses. The study also reveals the low impact of the medical coverage mechanism on health expenses for PLHIV; it highlights the financial challenges PLHIV face when seeking care, even though some services are provided free of charge. These results should lead to an immediate strengthening of support measures for PLHIV and changes to administrative procedures to make health coverage mechanisms effective for the entire population, including people affected by chronic diseases.

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critically revised the article and added substantial information. All authors have approved the final version.

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