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Evaluation of the Cost of Treating Cirrhosis in Patients Hospitalised in the Hepatology and Gastroenterology Department of the Sourô Sanou University Hospital Center

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Abstract

Introduction: Liver cirrhosis is the final stage of many chronic liver diseases and remains a major cause of morbidity and mortality. In Burkina Faso, it is the most prevalent liver disease, but its medical and economic implications have been little explored. The aim of this study was to assess the costs of hospital care for cirrhosis at the Sourô Sanou University Hospital Centre (CHUSS) in Bobo-Dioulasso. **Methods:** An observational, cross-sectional, descriptive study was conducted from 1 March to 1 May 2025. It involved 50 cirrhotic patients hospitalised in the Hepatology and Gastroenterology Department who met the inclusion criteria and agreed to participate. Sociodemographic, clinical and economic variables were collected and analysed. **Results:** The average age of patients was 50.8 years, with a sex ratio of 5.25. Fifty-four per cent of patients were farmers, most of whom lived in rural areas. Two had health insurance. Self-funding and family support were the two primary financing sources: half paid for their own care and 44% of the funding came from parents. The median monthly income was 83.300 CFA francs (139 USD). The average length of hospital stay was 5.4 ± 1.7 days. The average direct medical cost was 168,710 CFA francs (281 USD), dominated by paraclinical examinations (108,588 CFA francs or 181 USD), followed by treatment (53,780 CFA francs or 90 USD) and hospitalisation (5600 CFA francs or 9.3 USD). The average direct non-medical cost was estimated at 18,886 CFA francs (31.5 USD). In cases of hepatic encephalopathy, the cost peaked at 196,352 CFA francs (327.25 USD). Indirect costs, assessed in 16 patients, averaged 12,153 CFA francs (20.25 USD). **Conclusion:** Hospital care for cirrhosis at the CHUSS represents

a considerable economic burden for patients and their families, in a context marked by the absence of universal health coverage.

Keywords

Cirrhosis, Treatment Costs, Hepatology and Gastroenterology, Bobo-Dioulasso

1. Introduction

Liver cirrhosis is the final stage of many chronic liver diseases, including viral hepatitis, chronic alcoholism, metabolic disorders and autoimmune disorders [1]. It has a significant impact on public health, particularly due to its increasing prevalence worldwide. In 2021, it was estimated that there were 58,417,006 new cases, which is an 18% increase compared to 2010 [2]. In Burkina Faso, it is the most prevalent hepatobiliary disorder, accounting for 27.63% of cases [3]. Beyond its growing incidence, cirrhosis is a particularly serious condition due to its frequent and severe complications. Cirrhosis is much more than a simple histological change in the liver; it follows a progressive course, exposing patients to an increased risk of decompensation, which is often a turning point in their prognosis. Data from the Global Burden of Disease (GBD) study in 2021 illustrate this: 1.47 million deaths worldwide were attributable to cirrhosis [4]. Due to the severity of this disease, constant medical vigilance is required, necessitating regular monitoring, frequent hospitalisations and appropriate care. Management is further complicated by the fact that it is often exacerbated by comorbidities, accelerating its progression and making a multidisciplinary approach essential to ensure optimal disease management [1]. In addition to its medical impact, cirrhosis places a significant financial burden on patients, healthcare systems and society as a whole. [5]. The disease incurs substantial direct costs related to medical consultations, hospitalisations, drug treatments and surgical procedures, as well as indirect costs such as loss of income due to disability or premature death of patients [6].

In light of this, medical-economic studies seem to be an essential tool for gaining a better understanding of these financial costs. They improve our understanding of health issues and enable us to define appropriate health strategies, optimising the use of resources and improving patient care [7]. However, the medical-economic aspects of this disease remain largely unexplored. Against this backdrop, we conducted a study in the hepatology and gastroenterology department (HGE) at the Sourô Sanou University Hospital Centre in Bobo-Dioulasso, with the aim of evaluating the cost of treating cirrhosis in patients admitted to the department.

2. Methods

This was an observational, cross-sectional study employing a descriptive evaluative approach. Data collection took place over a two-month period from 1 March to 1 May 2025. The study included all patients hospitalised in the Hepatology and

Gastroenterology Department of the Sourô Sanou University Hospital Centre who had been diagnosed with cirrhosis and had received and completed prescribed paraclinical tests, with proof of expenses incurred. Informed consent was obtained from all patients, or from their legal representative in cases of impaired consciousness. Patients diagnosed with cirrhosis in association with another pathology were not included. A total of 50 patients who met the inclusion criteria were included successively according to their order of admission to the department during the data collection period.

The study data were collected using a questionnaire that had previously been tested and adjusted. The variables studied related to the patients' sociodemographic, clinical and economic data. Data sources included interviews with patients and their companions, clinical records of hospitalised patients and payment receipts. The economic evaluation was based on the patient's perspective. A microcosting method was employed to accurately identify and quantify the costs incurred by patients. It was a detailed inventory of all resources consumed by each patient based on clinical records and payment receipts. All amounts were expressed in CFA francs (CFAF) or US Dollars (USD). Data entry and analysis were performed using Excel 2019 and EPI Info 7.2.5.0 French edition software on a microcomputer.

As part of our study, we identified several types of treatment-related costs. Firstly, direct medical costs include expenses related to additional tests, treatment and hospitalisation. Secondly, direct non-medical costs include transportation, food, phone credit and other care-related expenses. Together, these two components constitute direct costs, which are the sum of direct medical and non-medical costs. Finally, indirect costs correspond to the loss of productivity associated with the illness. Regarding the cost calculation method, the average cost is the sum of the costs per patient divided by the size of the relevant population. Additionally, the financial loss associated with loss of productivity was estimated using the following formula: Average daily income lost × length of hospitalisation.

Before initiating this study, we obtained approval from the Director General of CHUSS and the Head of the Department of Medicine. All patients gave their verbal consent to participate, and were informed that they could withdraw at any time without affecting the quality of care or benefits to which they were entitled. To ensure confidentiality, data was processed in numerical form, without reference to patient identities. Clinical, paraclinical and economic information was collected as part of routine care.

3. Results

1) Sociodemographic profile

The average age of the patients was 50.8 years, with ages ranging from 19 to 72. The largest age group was 39 - 49 years (see **Figure 1**).

There were significantly more men, who represented 84% of the total (sex ratio: 5.25). The majority of patients were married (90%) and farmers (54%) (see **Table**

1). Almost 70% lived in rural areas, compared to 30% in urban areas. Medical coverage was virtually non-existent: 96% had no insurance and only 4% had partial coverage of 80% of medical expenses.

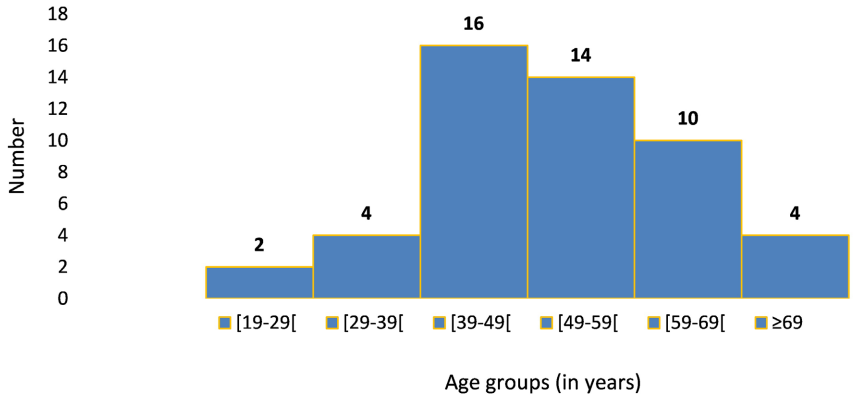

Figure 1. Distribution of patients with cirrhosis hospitalized in the HGE department of the CHUSS according to age groups.

Table 1. Distribution of patients with cirrhosis hospitalized in the HGE department of the CHUSS according to their main occupation.

Profession	Frequency	Percentage
Farmer	**27**	**54**
Salaried employee	10	20
Trader	4	8
Driver	3	6
Housewife	3	6
Breeder	1	2
Retired	1	2
Restaurant operator	1	2

Half of the patients (50%) financed their own care without recourse to third-party payment (see **Table 2**). Regarding the cost of hospitalisation, 62% of patients considered it high, while 38% considered it moderate. The median monthly income of the surveyed patients was 83,300 CFA francs. The main caregivers were mostly children or siblings (16% each), and more than half (52%) worked in agriculture.

Table 2. Distribution of patients with cirrhosis hospitalized in the HGE department of the CHUSS according to their sources of funding.

Source of funding	Number	Percentage
Patient	**25**	**50**
Parents	22	44
Insurance	2	4
Social structure	1	2

2) Clinical variables

The main reason for hospitalisation was decompensation of cirrhosis in the ascites form (non-infected ascites), observed in 74% of patients. This was associated with hepatocellular carcinoma in over half of the cases (56%). Cirrhosis was diagnosed during hospitalisation or within the previous two months in 64% of patients, while 36% were already aware of their condition prior to the study. Viral aetiology was by far the most common cause (78%), primarily due to hepatitis B (82%) and, to a lesser extent, hepatitis C (18%). Alcohol poisoning was found in 12% of patients and the aetiology could not be determined in 10% of cases. Only 18 patients were under regular medical supervision for an average of 5.5 months. The average length of hospital stay was 5.4 days (range 1 - 9 days). Upon discharge, 84% of patients were stable (normal consciousness, relief from abdominal pain, restored appetite and normal digestive transit, with normal hemodynamic parameters, including temperature, pulse, pulse oxygen saturation, and blood pressure), 6% left against medical advice and 10% died during their stay.

3) Economic variables

The average direct medical cost was 168,710 CFA francs (± 45,341) or 281 USD, with extremes ranging from 88,885 to 277,811 CFA francs or 463 USD. Paraclinical tests accounted for the largest proportion of expenditure (64%), followed by drugs and consumables (33%) (see Figure 2). The average non-medical direct cost was estimated at 18,886 CFA francs ± 7794 or 31.5 USD, with values ranging from 4000 to 44,000 CFA francs (6.67 to 73.3 USD). Thus, the average total direct cost was 186,854 CFA francs ± 48,751 (311.4 USD), 90% of which was related to medical expenses. Treatment for hepatic encephalopathy incurred the highest average direct costs (196,353 CFA francs or 327.25 USD), followed by treatment for hepatocellular carcinoma (195,538 CFA francs or 326 USD) (see Table 3). All patients were completely unable to work during their hospitalisation. More than half (58%) suffered financial loss, while 42% did not report any. Of the patients affected, 16 were able to quantify their losses, estimating an average loss of income of 12,153 CFA francs (20.25 USD), with extremes ranging from 1000 to 35,000 CFA francs (1.7 to 58.3 USD). These were the only patients able to quantify their loss of income.

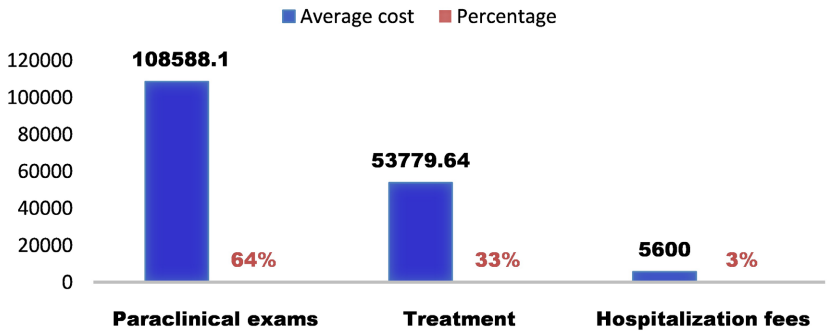

Figure 2. Distribution of direct medical costs among patients with cirrhosis hospitalized in the HGE department of the CHUSS.

Table 3. Distribution of average direct costs of various complications in patients with cirrhosis hospitalized in the HGE department of the CHUSS.

Complications	Average cost (USD)
Hepatic encephalopathy	**327.25**
Hepatocellular carcinoma	**326**
Ascites	278
Upper gastrointestinal bleeding	269.5

4. Discussion

In our study, the average age of cirrhotic patients was 50.8 years, with the majority falling within the 39 - 49 age group. This figure is comparable to those reported by Illa *et al.* in Niger (51.09 years) [8] and Doffou *et al.* in Côte d'Ivoire (49.8 years) [9], but higher than the figures reported by Sawadogo *et al.* in Burkina Faso (47.5 years) [10] and Diarra *et al.* in Mali (41.5 years) [11], and lower than the figures reported in Algeria and France (52.4 years) [12] [13]. The relatively young age of patients in sub-Saharan Africa can be explained by the high prevalence of hepatitis B, which is responsible for the majority of cirrhosis cases (39 cases, or 78%), predominantly post-hepatitis B forms (32 cases). Maternal-fetal transmission, low screening rates and late diagnosis often contribute to the early onset of the disease [14].

The majority of patients (70%) lived in rural areas, which contrasts with data from Sawadogo *et al.* in Burkina Faso, where 54% of patients were from Bobo-Dioulasso [10]. This difference can be attributed to the higher prevalence of hepatitis B in rural areas, the absence of specialised healthcare facilities, and the limited availability of vaccinations and screenings. The most common occupational group was farmers (54%), reflecting their high proportion in the Burkinabe population [15].

As reported by Bouglouga *et al.* [16] in Togo and Atipo-Ibara [17] in Congo-Brazzaville, the vast majority of patients had no health insurance coverage. This low level of coverage can be attributed to the relatively high cost of contributions to the Universal Health Insurance Scheme, which poses a significant obstacle for low-income populations, particularly those employed in the informal sector. These individuals must pay a monthly contribution of 4000 CFA francs (6.7 USD), which can represent a significant financial burden for households with unstable or seasonal incomes [18]. Added to this is a lack of information and awareness, which fosters mistrust and disinterest in the social protection system.

Half of the patients financed their own care, which is a higher rate than that observed in the Central African Republic (22.5%) [19]. A significant number of patients also received family support, which illustrates social solidarity [20]. This mutual aid not only expresses social cohesion values, but is also a necessity in a context where the high cost of care exceeds many patients' individual capacity.

Ascites was the main reason for hospitalisation (74%), which is consistent with

the findings of Bellil *et al.* [12], Touré *et al.* [21] and Sawadogo *et al.* [10]. It marks the transition to decompensated cirrhosis. Hepatic encephalopathy, observed in 14% of patients, is less common than in other contexts [12] [21]. This difference could be explained by the clinical characteristics of our sample, particularly the absence of major comorbidities recognised as risk factors for this complication. Furthermore, the systematic implementation of a preventive strategy involving the administration of lactulose upon admission has likely contributed to reducing its incidence. The average length of hospital stay was 5.42 days, which is shorter than that reported by Sawadogo [10] due to improved care and less severe clinical conditions among the included patients.

The average cost of paraclinical tests in our study (108,588.1 CFA francs or 181 USD) was lower than the figures reported by Bouglouga *et al.* in Togo (174,302 CFA francs or 290.5 USD) [16] and by Atipo-Ibara in Congo-Brazzaville (164,900 CFA francs or 275 USD) [17]. This disparity can be explained by differences in pricing policies for medical examinations specific to each country, which are influenced by factors such as health infrastructure, equipment costs and public subsidies. At Sourô Sanou University Hospital Centre, patients are forced to turn to private facilities due to the unavailability of certain paraclinical examinations, such as digestive endoscopy, long waiting times for morphological examinations, such as abdominal ultrasound, and the inability to perform certain biological tests. The higher rates charged by these facilities increase the financial burden of care for patients. The high cost of paraclinical examinations poses a significant barrier to accessing care, particularly for patients with modest incomes. Due to insufficient financial resources and a lack of social support mechanisms, some patients forego essential investigations, delaying diagnosis and compromising treatment. This can lead to health deterioration, increased risk of complications, and more expensive care in the long term.

The average direct non-medical cost of treatment was estimated at 18,886 CFA francs (31.5 USD), broken down into several expense items: 7568 CFA francs (12.6 USD) for transportation, 6844.90 CFA francs (11.4 USD) for food, and 4510 CFA francs (7.5 USD) for other expenses. These costs, although non-medical, were estimated and not objectively measured, due to the lack of supporting documents attesting to the expenses actually incurred. Most studies on the cost of cirrhosis care [16] [17] [22], especially in Africa, have not analyzed direct non-medical costs in depth, even though they significantly influence access to care and the quality of treatment. These results highlight the need to include these costs in studies evaluating disease-related expenses and in the development of health policies, in order to obtain a more comprehensive view of the economic burden borne by patients.

The average direct cost was estimated at 186,853.74 CFA francs (311 USD) and was mainly based on expenses related to paraclinical tests. Hepatic encephalopathy appeared to be the most costly complication in this study, a trend also observed by Bouglouga *et al.* in Togo [16]. This can be attributed to several factors, including the need for intensive care and prolonged monitoring, which increases

hospitalisation costs. Treatment involves specific therapies, such as lactulose and certain antibiotics, which are relatively expensive. Furthermore, hospitalisation is often prolonged, with patients requiring several days or even weeks before clinical improvement is observed. Furthermore, the risk of recurrence necessitates regular medical follow-up and ongoing therapeutic management, thereby contributing to elevated overall costs. The average direct costs of cirrhosis complications varied across studies. According to our analysis, the cost of treating hepatic encephalopathy was estimated at 196,352.5 CFA francs (327.25 USD) and hepatocellular carcinoma at 195,538.1 CFA francs (326 USD), primarily based on symptomatic treatment. Ascites represented an average expenditure of 166,757.4 CFA francs (278 USD), and gastrointestinal bleeding resulted in an average cost of 161,685 CFA francs (269.5 USD). In comparison, the work carried out by Atipo in Congo-Brazzaville revealed higher amounts: 272,345 CFA francs (453.9 USD) for ascites, 195,675 CFA francs (326 USD) for hepatic encephalopathy, 207,935 CFA francs (346.6) for hepatocellular carcinoma, and 245,680 CFA francs (409.5 USD) for gastrointestinal bleeding. The differences observed between the average direct costs of cirrhosis complications seem to be largely influenced by disparities in hospitalization costs in the two contexts studied. In Congo-Brazzaville, hospitalization in a shared room costs 5000 CFA francs (8.3 USD) per day, with an overall average cost of 85,700 CFA francs (142.8 USD) [17].

By contrast, our study found that hospitalisation costs were significantly lower, with daily rates set at 1000 CFA francs (1.7 USD) for a third-class ward and 2000 CFA francs (3.3 USD) for a second-class ward, resulting in an average total cost of 5600 CFA francs (9.3 USD). These price disparities directly influence the overall cost of treating liver complications. Prolonged hospitalisation, particularly for serious conditions such as hepatic encephalopathy or gastrointestinal bleeding, leads to higher expenses in a context where the cost of a hospital stay is higher. Additionally, variations in access to care, medical equipment and health financing policies may contribute to these disparities.

All patients were unable to work during hospitalization, but 42% suffered no financial loss thanks to their socio-professional status or family support. This significant proportion can be explained by the diversity of socio-professional situations, which directly influence the economic impact of the disease. Certain categories seem to be better protected from the financial consequences of cirrhosis. Employees and retirees continue to receive their salary or pension, thus ensuring economic stability. Traders, on the other hand, can entrust the management of their business to a family member, thus limiting the effects of their absence. Finally, farmers benefit from the support of their children, who ensure the continuity of agricultural work and the maintenance of income.

These findings highlight the essential role of family structures and solidarity mechanisms in the economic resilience of patients with cirrhosis. They also underscore the importance of adapting support policies to socio-professional realities in order to effectively assist the most vulnerable individuals. Of the 29 patients

facing financial hardship, 16 were able to specify the extent of the economic impact they suffered. The average financial loss over the entire hospital stay amounted to 12,153 CFA francs (20.25 USD), highlighting the economic burden of the disease. In developed countries, the indirect costs associated with cirrhosis are a major economic burden. A study conducted in the United States by Archita *et al.* [23] estimated these costs at 5937 billion CFA francs (9.9 billion USD), mainly attributable to premature mortality, early retirement, and prolonged sick leave.

We recognize the limitations of this perspective, which is dominated by the patients' point of view, and future research will focus on evaluating costs from the perspective of society or the healthcare system in order to obtain a more comprehensive analysis.

5. Conclusion

The management of cirrhosis represents a considerable financial burden, with particularly high direct medical costs due to the price of specific treatments, diagnostic tests, and prolonged hospitalizations. Added to this are direct non-medical costs. It is also essential to assess indirect costs, which reflect the socioeconomic impact of the disease. In the absence of adequate medical coverage, family members often bear the high costs of care, exacerbating their precarious situation. Optimized resource management, access to generic drugs, and universal health insurance are essential to alleviate this burden. We suggest studying subsidized or multi-tiered health insurance models for low-income populations or those suffering from costly chronic diseases.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Balian, A. (2005) La cirrhose et ses complications. Doin, 171 p.

[2] Tham, E.K.J., Tan, D.J.H., Danpanichkul, P., Ng, C.H., Syn, N., Koh, B., *et al.* (2025) The Global Burden of Cirrhosis and Other Chronic Liver Diseases in 2021. *Liver International*, **45**, 478-493. https://doi.org/10.1111/liv.70001

[3] Somé, E.N., Nana, F.W., Lompo, I.T., Maxime, D. and Sombié, R. (2021) Cirrhosis: Therapeutic Aspects and Outcome for Hospitalized Patients in Burkina Faso. *Open Journal of Epidemiology*, **11**, 152-162. https://doi.org/10.4236/ojepi.2021.112014

[4] Institute for Health Metrics and Evaluation (IHME) (2024) IHME GBD 2021 Data Tools Guide. IHME, 26 p.

[5] Nguyen, D., Nguyen, T. and Pho, N. (2017) Analyzing the Treatment Cost of Liver Cirrhosis from Healthcare Payer's Perspective of Vietnam in 2015. *Value in Health*, **20**, A633. https://doi.org/10.1016/j.jval.2017.08.1429

[6] Kanwal, F., Nelson, R., Liu, Y., Kramer, J.R., Hernaez, R., Cholankeril, G., *et al.* (2023) Cost of Care for Patients with Cirrhosis. *American Journal of Gastroenterology*, **119**, 497-504. https://doi.org/10.14309/ajg.0000000000002472

[7] Lévy, P. and Le Pen, C. (2018) L'évaluation médico-économique: Concepts et méthodes. Le Grand Métier, 172 p.

[8] Hamidine, I. and Al, E. (2024) Aspects épidémiologiques et pronostiques de la cirrhose décompensée à l'Hôpital National de Zinder. *Revue Malienne d'Infectiologie et de Microbiologie*, **19**, 34-39. https://doi.org/10.53597/remim.v19i3.2889

[9] Doffou, A.S., Bangoura, A.D., Kouamé, G.D., Yaogo, A., Méité, M., Kissi, H., *et al.* (2019) La cirrhose alcoolique chez le noir africain au centre hospitalier universitaire de Yopougon: Caractéristiques épidémiologiques, cliniques et biologiques. *Revue Internationale des Sciences Médicales d'Abidjan*, **21**, 212-218.

[10] Sawadogo, W.A. (2012) Aspects épidémiologiques, cliniques, paracliniques, étiologiques et évolutifs de la cirrhose du foie au Centre Hospitalier Universitaire Sourô Sanou de Bobo Dioulasso: À propos de 87 cas. Thèse, Université de Ouagadougou, UFR/SDS, Thèse No. 117, 150 p.

[11] Diarra, M., Konaté, A., Soukho, A., Dicko, M., Kallé, A., Doumbia, K., *et al.* (2010) Aspects évolutifs de la maladie cirrhotique dans un service d'hépato-gastroentérologie au Mali. *Mali Médical*, **25**, 42a.

[12] Bellil, L. and Bendjazia, F.L. (2020) Étude épidémiologique, descriptive et analytique de la cirrhose hépatique. [Mémoire]. Université des Frères Mentouri Constantine 1, Faculté des Sciences de la Nature et de la Vie, Département de Biologie Animale, 60 p.

[13] Boursier, J., Vergniol, J., Sawadogo, A., Dakka, T., Michalak, S., Gallois, Y., *et al.* (2009) The Combination of a Blood Test and Fibroscan Improves the Non-invasive Diagnosis of Liver Fibrosis. *Liver International*, **29**, 1507-1515. https://doi.org/10.1111/j.1478-3231.2009.02101.x

[14] Sangaré, L., Sombié, R., Combasséré, A.W., Kouanda, A., Kania, D., Zerbo, O. and Lankoandé, J. (2009) Transmission anténatale du virus de l'hépatite B en zone de prévalence modérée du VIH, Ouagadougou, Burkina Faso. *Santé Publique*, **21**, 339-46.

[15] Institut National de la Statistique et de la Démographie (INSD) (2022) Cinquième Recensement Général de la Population et de l'Habitation du Burkina Faso—Synthèse des résultats définitifs. 2nd Edition, INSD, 199 p.

[16] Bouglouga, O., Bagny, M., Lawson-Ananissoh, L., Kaaga, L., Djibril, M., Redah, D., *et al.* (2013) Evaluation du coût financier direct de la prise en charge de la cirrhose et de ses complications dans le service d'Hépato-gastro-entérologie du CHU-Campus de Lomé (Togo). *La Revue Médicale de Madagascar*, **3**, 235-239. https://doi.org/10.62606/rmmao00078

[17] Atipo-Ibara, B.I., Ondele-Ngoli, A., Ibara, J.R., Okouo, M., Ngoma-Kadoulou, P. and Itoua-Ngaporo, A. (2004) Le coût financier de la prise en charge hospitalière de la cirrhose et de ses complications au CHU de Brazzaville. *Medecine Tropicale*, **64**, 50-52.

[18] ActuBurkina (2024) Régime d'assurance maladie universelle: Voici les différents taux de cotisation. https://actuburkina.net/regime-dassurance-maladie-universelle-voici-les-taux-de-cotisation-prevus/

[19] Camengo Police, S.M., Mbeko Simaleko, M., Boua Akelelo, N.P., Service, G., Longo, J.D., Molowa Kobendo, J.R., *et al.* (2013) La cirrhose et ses complications à l'hôpital universitaire de l'Amitié de Bangui: Étude du coût de la prise en charge. *Journal Africain d'Hépato-Gastroentérologie*, **7**, 78-81. https://doi.org/10.1007/s12157-013-0454-3

[20] Sow, K. and Desclaux, A. (2002) La solidarité familiale dans la prise en charge des

patients: Réalités, mythes et limites. In: Desclaux, A. and Taverne, B., Eds., *L'Initiative sénégalaise d'accès aux médicaments antirétroviraux*: *Analyses économiques*, *sociales*, *comportementales et médicales*, ANRS, 79-96.

[21] Touré, E.S. (2008) Aspects épidémiologiques, étiologiques, cliniques et thérapeutiques de la cirrhose à l'Hôpital National de Niamey. Thèse, Université de Bamako, Faculté de Médecine, de Pharmacie et d'Odonto-Stomatologie (FMPOS), 90 p.

[22] Toko, H.L.T. (2018) Évaluation du coût direct de la prise en charge des patients présentant une cirrhose décompensée à Yaoundé. Thèse Internet, Université de Yaoundé I, Faculté de Médecine et des Sciences Biomédicales, 101-103.

[23] Desai, A.P., Mohan, P., Nokes, B., Sheth, D., Knapp, S., Boustani, M., *et al.* (2019) Increasing Economic Burden in Hospitalized Patients with Cirrhosis: Analysis of a National Database. *Clinical and Translational Gastroenterology*, **10**, e00062. https://doi.org/10.14309/ctg.0000000000000062