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RESEARCH ARTICLE

ACCESS TO MEDICINES STRATEGIES OF THE NATIONAL CANCER CONTROL PROGRAMME IN CAMEROON

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Abstract

Objective: Access to cancer drugs is a public health concern in low and middle-income countries. In Cameroon, the National Cancer Control Programme (NCCP) faces various obstacles to ensure accessibility of cancer drugs. This research aims to analyse the strategies implemented by the NCCP to ensure drugs selection and supply chain management, and obstacles encountered at the central level.
Methods: A qualitative cross-sectional situational analysis was carried out at the NCCP and the National Essential Medicines Supply Central (NEMSC)in Yaounde. For this purpose, tape-recorded interviews were conducted with key informants using two interview guides. After transcription, the verbal data were kept in a textual corpus and rendered in verbatim. The content analysis was done manually on the basis of a dimension matrix. SPSS version 20 was used to determine descriptive parameters like frequencies and means.
Results: Total 47% of the drugs retained were part of the National list of essential medicines. The NEMSC ordered 13 princeps. Among these, 35% had generics on the market. In logistics chain management, drug needs estimation and supply planning were based on approximation. As there was no sure information trackability and coordination between actors, not ensured. Also, a monitoring and evaluation plan had not been put in place. Furthermore, the only source of funding was the Government through the annual budget line. Limited financial resources allocated to supply was the main bottle neck, due to the high cost of the therapies and the ever-increasing demand. This resulted in a long stock-out (up to 15 months) for all the drugs and complete unavailability for others, like morphine, despite its great palliative care demand.
Conclusion: There are many challenges around cancer drugs accessibility in Cameroon. Therefore it is an urgent need to strengthen drug provision services within the NCCP.
Keywords: Access to medicines strategies, Cameroon, drug access challenges, NCCP, supply chain management.

INTRODUCTION

The data on cancer are alarming. Indeed, 1 in 6 deaths is due to this disease, with nearly 10 million deaths each year[1], making it the second leading cause of death worldwide[2]. Its incidence is estimated at around 19.3 million new cases in 2020, with the most affected organs being the breast (11.7%) and the lung (11.4%)[1]. In addition, the economic impact of the disease is particularly significant. In fact, overall costs of cancer are rising. In the United States (US), approximately $ 200.7 billion was spent in 2020 and this amount is projected to be around 246 billion over the next 10 years[3]. According to data provided by the World

Health Organization (WHO), more than 50% of cancers occur in the three quarters of the world's population that live in developing countries, which have only 5% of the resources devoted to cancer services[4]. Africa has the lowest incidence of the disease compared to the rest of the world, and unfortunately cancer mortality remains relatively high[5]. In sub-Saharan Africa for example, cervical and breast cancer are the most common cancers in the region. The 5-year survival rate for breast cancer is considered to be 15%, compared with 85% in high-resource countries[6]. There are several reasons for these remarkable differences across the globe. On the one hand, low priority given to cancer by health systems in most African countries in favour of infectious diseases such as HIV infection, malaria and tuberculosis[7]. On the other hand, low accessibility of health information but also of care and services which remain poorly adapted and very expensive for the majority of the populations, and in particular drug treatments[8-10].

Resolution WHA58.22 entitled "Cancer prevention and control" aimed to intensify action by member countries against cancer in creating, or strengthening where they already existed, comprehensive cancer control programmes[11]. This should involve public health action to reduce incidence and mortality of cancer and improve quality of life of patients. It is only possible through the systematic implementation of evidence-based strategies for prevention, early detection, diagnosis, treatment and palliation[4]. To this end, the integration of advances in cancer drug research and development (R&D) represents a real social and economic challenge.

In Cameroon, despite efforts of the National Cancer Control Programme (NCCP), incidence of the disease (15,262 new cases per year) and mortality (1,533 deaths per year) have been increasing over the years[12]. Thus, this study is part of an analysis of the strategies undertaken by NCCP, and specifically with regard to access to drugs for the management of patients. It consists of describing active molecules used, their supply mechanisms and main constraints in the implementation of these strategies; final objective being to formulate some evidence-based recommendations.

METHODS

Site and Type of study

The study involved the NCCP and the National Essential Medicines Supply Central (NEMSC) in Yaounde, both of which represent the central level in the supply chain of cancer drugs in Cameroon. This was a qualitative cross-sectional situational analysis conducted over a period of ten (10) months, from September 2018 to June 2019.

Inclusion and exclusion criteria

The sampling was exhaustive. All the strategies for access to medicines put in place by the NCCP and applied at the NEMSC level were selected. Those that were not very explicit or incomplete were systematically excluded. To ensure the credibility of the information, only key informants were interviewed. All those responsible for any part of the supply chain, whether at the NCCP or at the NEMSC.

All the drugs used in the management of the disease were included, i.e. anti-cancer drugs and adjuvant or supportive care treatments.

Ethical and administrative considerations

Administrative authorizations were granted by both parties involved. Following validation of the research protocol, the Institutional Ethics and Research Committee of Faculty of Medicine and Biomedical Sciences/University of Yaounde I, has provided an ethical clearance (No. 072/UYI/FMBS/VDRC/CSD). In addition, all participants gave their free consent.

Data collection

Two (02) interview guides were designed, then pre-tested. Their validation has been approved by peers. They dealt respectively with identification of the key informant, logistics cycle, supply constraints and recommendations. The one addressed to NEMSC was organised according to the different departments involved in the supply chain: Supply department, Quality assurance unit, Commercial department and Operational department (of public health programme stores). The data collection method was one-to-one audio recorded interview. The duration of an individual interview was thirty (30) minutes. And to complete audio-taped interviews, fields notes was also taken from few archives from 2016 to early 2019, approximately the period of exercise of the previous national strategic plan for cancer control and prevention, before the relaunch in 2020.

Statistical analysis

The qualitative data collected on voice recorder were all systematically transcribed without sorting. Then, all the information was kept in a textual corpus and rendered in verbatim. The content analysis was done manually using a colour code, based on the dimension matrix. A gap analysis was performed. The aim was to identify the real challenges and to provide solutions based on the evidence. SPSS (Statistical Package for the Social Sciences) version 20, was used for quantitative analysis of the data in the form of frequency or mean. Whenever the name of a protagonist was mentioned in the recordings, it was anonymised by X in the transcribed text introduced as verbatim.

RESULTS

Drugs selected for management

A list of drugs was established by a therapeutic committee to serve as a model. This list has not changed significantly since 2017. It included thirty-six (36) active molecules. These were grouped into four (04) categories according to their pharmacological action and type of care as shown in Table 1. For specific oncological care, the most represented therapeutic classes were alkylants and antimetabolites at 18% respectively and spindle poisons at 14%. In the "Others" category, which is essentially supportive care, the following therapeutic classes were listed: antiemetics and antinauseants at 6%, analgesics, antianemics, cytoprotectants/detoxifiers, parenteral

nutrition products and those used in cases of malignant hypercalcemia, represented at 3% for each of these classes. According to the National List of Essential Medicines in force in Cameroon, 47% of the medicines were listed. Most of them were found in generic form while thirteen (13) princeps were listed (Table 2). It was noted that 6/13 of these products, including Alimta, Alkeran, Eloxatin, Endoxan, Taxol and Taxotere, had generics on the market.

Table 1: Drug categories by type of care.

Categories	Percentage	Types of care
Conventional chemotherapies (Cytotoxic and others)	61	Specific oncological care
Specific and non-specific immunotherapies	10	
Inhibitors of oncogenic mechanisms (Hormone therapies)	8	
Others	21	Supportive care

Drug supply mechanisms

Downstream of the supply chain, they are two (02) treatment centres (Yaounde General Hospital and Douala General Hospital) which express needs through the NCCP. As a result, a working group is solicited on an ad hoc basis. This group is composed of pharmacists and oncologists from the treatment centers, executives from the programme, but also some figures from the Ministry of Public Health (MoH). As the therapeutic protocols are most often not available, drugs are added or removed from the initial list on the basis of the oncologists' expertise. To this effect, a NCCP executive had affirmed that: "The group bases itself much more on...what the prescribers are in the habit of using as drugs". Quantification only took place when the budget was known. The stock level was not available and a safety stock was not planned. After the selection, which is essentially qualitative, a letter is sent to NEMSC, which then takes over. The planning of the supply of inputs for the NCCP was not effective, as the Head of the Drug Procurement Department (HDPD) at NEMSC pointed out: The cancer committee does not systematically send us ...in a timely manner what their needs are. If we have to buy products...and we only get the information in the very last quarter of the year...How do we do ?...It is difficult for us to integrate the needs of the programme into what is...our work plan." To finance the purchase of drugs, a budget line is allocated by the MoH each year. In addition, there are working capital funds, those from the sale of drugs in the two (02) dispensing points of the treatment centers. The NCCP had no other financial partners and no donation of drugs had been received for nearly ten (10) years. In accordance with the code governing public procurement in Cameroon, the procurement procedure used is invitation to tender. It is of the open international type for anticancer drugs. The criteria for selecting suppliers specified in the tender documents are: product quality (expiry date>75%), price, supplier's qualifications, after-sales service and delivery times. The most solicited suppliers are only based abroad: Sanofi, Hoffman Laroche, Mylan and Hetero labs. The periodicity of the order was not defined as it was somewhat irregular as revealed by the following words of the HDPD: "In 3 years, we have received only one order".

For international shipments, a first stage at the supplier's expense includes the shipment of the drugs from the manufacturer's warehouse and arrival at the airport of entry. While customs clearance, receipt of goods and their inspection at the airport of exit are the responsibility of NEMSC. Once at the central office, a reception committee must ensure that the quantities comply with the order form and the technical specifications of the products. Finally, the products are stored in warehouses. Despite the negligible distance between the NCCP headquarters and NEMSC, both located in the same city (Yaoundé), delivery times are often long, up to two (02) months. For example, a delivery note had been established on December 7th, 2018 by the NEMSC customer service and thus confirmed the destocking of the products.

Table 2: NCCP Princeps.

S.N.	Trade names	INN	Therapeutic classes
1	Zoladex	Goserelin	Hormone analogues
2	Decapeptyl LP	Triptorelin	
3	Endoxan	Cyclophosphamide	Alkylants
4	Alkeran	Melphalan	
5	Eloxatin	Oxaliplatin	
6	Rituxan	Rituximab	Monoclonal antibodies
7	Herceptin	Trastuzumab	
8	Taxotere	Docetaxel	Spindle Poisons
9	Taxol	Paclitaxel	
10	Emend	Aprépitant	Antiemetic
11	Perikabiven	Ternary mix*	Parenteral nutrition
12	Neupogen	Filgrastim	Immunostimulant
13	Alimta	Pemetrexed	Antimetabolite

INN= International Nonproprietary Name *= Glucose, Amino acids and electrolytes, Lipid emulsion

Table 3: Most expensive drugs.

S.N.	INN	Dosage	Packaging	Price in US$	
				NEMSC	NCCP
1	Ternary mixture	1000 kcal	B/1	369.8	184.9
2	Goserelin	3.6 mg	B/1	203.7	101.9
		10.8 mg	B/1	690.6	345.3
3	Pemetrexed	500 mg	B/1	92.1	46
4	Rituximab	100 mg	B/1	108.4	54.2
5	Trastuzumab	150 mg	B/1	255	127.5
6	Triptorelin	3 mg	B/1	490.6	245.3

INN= International Non-proprietary Name

Except that the programme only went to retrieve the said products at the end of February 2019, for reasons that have unfortunately not been investigated here. An information and logistics management system has not been put in place because the traceability of data was not very effective. As demonstrated by the following comments made by a NCCP executive : "There is not really an elaborate system for information. I think that if there were drugs permanently available, perhaps that would have encouraged us to set up such a system"; and those of the HDPD: "Because the programme's orders themselves are quite irregular, there is no need to open a database just for something that is done... on an ad hoc basis". In terms of supply chain monitoring and evaluation, this was not planned by either the NCCP or NEMSC. No supervision had taken place.

Supply constraints

These included: organization and regulation of services, affordability and availability of drugs. The main constraints were illustrated according to their impact on over all access (Figure 1).

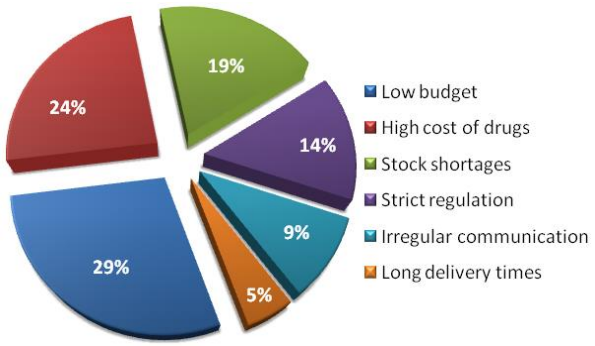

Figure 1: Drug supply constraints.

The budgetary constraints of the NCCP are those that most impacted access to drugs for the management of the disease. The funds allocated by government for the purchase of drugs were deemed insufficient. In addition, the delay in granting and releasing funds was also mentioned. The following statements by a NCCP executive support these results: "At the Ministry level, we do not mobilise enough funds.. Three or four times very insufficient compared to the demand".

The study of the cost of the drugs revealed a wide range of purchase prices, from US$0.42 to 690,57. Thanks to government subsidies, the NCCP resold all drugs at half the purchase price. However, some were still very high for a limited number of units in a box (one per box) (Table 3).

The first two constraints (Low budget and high cost) have a considerable impact on the availability of drugs, both at NEMSC and at the treatment centres. Supply shortages of varying duration have been recorded, which can last for more than 15 months. The case of morphine is quite particular. It has not been available in the progr amme for many years, often because of the strict regulations on the supply of narcotics, even for use in hospitals.

Furthermore, the NCCP and NEMSC maintained irregular and ineffective communication; often the cause of longer delivery times. The allegations of the Head of client services of other programs at the supply central support this finding "It is since November (year 2018)...we received the letter from Professor X(Permanent Secretary of the National Cancer Control Committee), after we prepared the drugs...we made, an official note, because we talked too much on the phone and as we did not see anyone in front of us to come and take, so I wrote that at least tell us where we must therefore deposit these products. Because on the Professor's note, there is no place to drop it off, otherwise we had dropped it off since then"

DISCUSSION

The description of the drugs in the NCCP revealed that 47% were essential drugs and 35% of princeps. Cancer drugs are mostly derived from innovative therapies and thus are often protected by patents. But nearly half of the princeps ordered by NEMSC had bioequivalents on the market from various generic companies, which were well established. Specialty drugs are known to be much more expensive than their generic counterparts. This price is often the result of R&D costs plus a margin to ensure an acceptable level of profitability for the manufacturers[13]. Even a small improvement in survival time gives laboratories enough leverage to demand astronomical prices even when the drugs have not required significant investment in research and development[14].The NCCP policy of reducing purchase prices by 50% has certainly reduced them considerably. However, it was reported that they remain well above the prices of private pharmacies. In 2015, a research conducted in Yaounde (Cameroon), shows some similarities. It showed that selling price of the most expensive antimitotic (Taxotere 80 mg) ranged from US$400.61 to 883.26 in two public hospitals while the same drug cost US$298.74 at a wholesaler[15]. On the other hand, the highest prices

were for Goserelin 10.8mg at US$345.29/vial for a treatment cost of US$1,381/year and Trastuzumab 150mg at US$ 127.46/vial for just over US$7,066/year per patient. In a country where the guaranteed inter professional minimum wage is US$65 the question arises as to how to ensure financial accessibility to a population that has no purchasing power. The concept of essential generic drugs as defined by the WHO (It must be available at all times, in sufficient quantity, at an affordable price for individuals and the community) [16] is difficult to ensure for the NCCP for the reasons mentioned above. Yet it is crucial for a country like Cameroon, where 51% of the population lives on less than US$2 per day and with a very high average propensity of total household medical consumption[17]. Because 16% of households spend more than half of their income on health care and up to 52%, more than all of this income. This corresponds to a weight of 68% in health expenditure[17]. One solution would be parallel imports of generic forms under the World Trade Organisation's Doha Declaration on Intellectual Property Agreements[18], since the pharmaceutical industry in the country and even in the sub-region is still in its infancy

Physical accessibility or availability is analysed here from the angle of its presence in the distribution points, both at the central and peripheral levels. The results showed a discontinuous supply chain with shortages that could go beyond one (01) year. The reasons were multiple. Firstly, orders were not regular, then the variability of suppliers did not allow the establishment of efficient and permanent exchange networks. Finally, stock-outs of western suppliers are also the cause of the unavailability of drugs in low- and middle-income countries, which, because of their industrial incapacity, are forced to do so[19]. Potential solutions include increasing and redistributing the budget for cancer treatment, collective bargaining and procurement, and again, the use of generics and biosimilars[20-22].

On the other hand, the implementation of strategies for access to medicines requires several mechanisms such as an efficient logistical organization and effective coordination between the actors[23,24]. The former strategic axes focused on chemotherapy and immunotherapy. It became clear that these areas needed to be updated to reflect current national needs, advances in innovative therapies and access to palliative care. This has been done. The current plan (2020-2024) promotes and supports these health strategies[12]. Thus, they need to be effectively implemented so that they take into account not only the evolution of science, gender and equity issues, but all the social determinants of the right to health at the national level, in order to contribute to universal health coverage. Non-communicable diseases remain a low priority in the health systems of developing countries in favour of infectious diseases, which often receive the most funding[25]. This has a considerable impact on the allocation and release of funds for cancer. There is a need to communicate to health professionals, public health experts, policy makers, communities and all stakeholders about the real risk of cancer and the implications of cancer prevention and control at all levels. For this purpose, communication for development would be the most appropriate strategy as it is a cross-cutting activity in project management aimed at strengthening dialogue with beneficiaries, partners and authorities in order to promote ownership of health programmes at the local level and produce a sustainable impact[26].

Generally speaking, this research work has inherent limitations for a type of research with a predominantly qualitative component. Indeed, on the one hand, it requires a significant amount of time, and on the other, it leaves a great deal to subjectivity and interpretation, particularly during the content analysis. In addition, the main constraint encountered in the field was the irregularity of the monitoring of information at the level of the NCCP, which was the cause of shortcomings in the process of returning a large part of the data relating to the description of medicines in terms of quality and quantity, but also of their prices.

CONCLUSION

In Cameroon, the NCCP performance is undermined by the many challenges. To this end, a few elements remain essential to ensure the effective implementation of access to medicines strategies, namely, methodical organization, mobilization of sufficient and sustainable funding and coordination at all levels, as described in the evidence base.

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AUTHOR'S CONTRIBUTION

Edo'o VD: writing original draft, literature survey. **Atenguena E:** methodology, conceptualization. **Essomba MJN:** formal analysis, review. **Abenwie SN:** investigation, data interpretation. **Nga EN:** data curation, investigation. **Hervé JN:** critical review, supervision. **Essomba TM:** data curation, investigation. **Ndom P. Essi MJ:** editing, methodology. All authors revised the article and approved the final version.

DATA AVAILABILITY

The data and material are available from the corresponding author on reasonable request.

CONFLICTS OF INTEREST

None to declare.

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