



## **Epidemiological and Clinical Profile of Patients in the Medical Emergency Department at Amissa Bongo Regional Hospital in Franceville (ABRH), Gabon; Retrospective Cross-sectional Study**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/JAMMR/2021/v33i1931073

#### Editor(s):

(1) Prof. Emin Umit Bagriaciak, Gazi University, Turkey.

#### Reviewers:

(1) Yasser Mohammed Hassanain Elsayed, Egyptian Ministry of Health, Egypt.

(2) Hari Shankar Sharma, Sikkim Manipal University, India.

(3) Akwuebu Susanna Osiro, Rivers State University, Nigeria.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/72589>

**Original Research Article**

**Received 20 June 2021  
Accepted 29 August 2021  
Published 04 September 2021**

## ABSTRACT

**Objective:** To evaluate the different non-surgical predominant pathologies in the emergency department of the Amissa Bongo regional hospital in Franceville, Haut-Ogooué.

**Materials and Methods:** Using consultation registers and some medical records, we retrospectively studied the epidemiological and clinical profile of patients who consulted for a medical and non-surgical or gynaeco-obstetrical emergency, from 1 January 2018 to 31 December 2018.

**Results:** During this period, 19597 patients consulted for a medical emergency at the Amissa Bongo regional hospital in Franceville in Haut-Ogooué (Gabon). This high score indicated that the majority of patients came from the different districts of the commune of Franceville and other departments of the province. Three periods of high attendance were distinguished: the long dry season (37.3%), the short rainy season (28.4%) and the long rainy season (24%), compared to the short dry season (10.3%). Infectious diseases were recurrent with 63.16%, and with 67% of cases, malaria (severe and simple) was more frequent. Non-infectious emergencies were also noted, such as diseases of the respiratory system (1791 cases = 24.81%), diseases of the digestive system (1028 cases = 14.24%), skin diseases (809 cases = 24.81%), cardiovascular diseases (800 cases = 11.21%), blood diseases (686 cases = 9.5%), diseases of the urogenital system (588 cases = 8.14%), diseases of the locomotor system (510 cases = 7.06%), ENT diseases (451 cases = 6.24%), diseases of the glands and metabolism (296 cases = 4.10%), diseases of the nervous system and the senses (260 cases = 3.60%)

**Conclusion:** Compared to non-infectious diseases, infectious and parasitic diseases are recurrent at CHRAB. They therefore require special attention from the health authorities of this hospital, and even of Gabon.

*Keywords: Medical emergencies; Amissa Bongo regional hospital; Franceville (Gabon).*

## 1. INTRODUCTION

Due to the 24-hour availability of emergency departments, they are key-link in the health care system and the gateway to any hospital. As a result, all countries in the world are experiencing a significant increase in the number of emergency department visits [1]. However, there is also an increase in the number of patients visiting for so-called "non-emergency" reasons [2,3]. In tropical areas, emergencies almost always occur in a poor socio-economic context with significant under-equipment [4,5]. Like most countries in Africa, Gabon has a regional hospital centre in each provincial capital with an emergency department. Nevertheless, these services, in all African countries, experience numerous difficulties related to the management of the many patients who flock to them [6]. They are frequently criticised both by the population and by some health workers themselves, who complain not only about the overcrowding of the premises, but also about the poor quality of the care provided [7]. Exposed to numerous pathologies, the populations of the Haut-Ogooué province consult the emergency department of the Amissa Bongo regional hospital in Franceville every day in order to be examined and treated. In this context, this study was undertaken to

observe and determine the epidemiological and clinical profile of patients received during 2018 at the emergency department of the said establishment.

## 2. MATERIALS AND METHODS

### 2.1 Study Location and Patients

This retrospective cross-sectional study was carried out between 1 January 2018 and 31 December 2018 using data collected from the consultation registers of the medical emergency department of the Amissa Bongo regional hospital in Franceville. We also examined the patients' files and extracted demographic data on sex, age group and place of residence. We also collected clinical, pathological and therapeutic data in these files: symptomatology. We also collected data on complementary explorations such as biology, radiological examinations, electrocardiograms, endoscopy, the diagnosis adopted (separating infectious from non-infectious diseases according to the apparatus affected), the outcome of the patients after consultation, among other things, return home the same day, observation for more than 24 hours, hospitalisation in clinical or intensive care

units, evacuation to another health structure or even the occurrence of death.

## 2.2 Limitations of the Study

In this study, we included all patients who had consulted just for a medical emergency and not for a gynaecological-obstetrical or surgical one.

## 2.3 Procedure for Obtaining Data

The data used for the study came from the database of the South East Regional Health Directorate in Franceville. Access to these data was facilitated by the collaboration between the University of Science and Technology of Masuku and the various hospital structures in the province of Haut-Ogooué.

## 3. RESULTS

### 3.1 Sociodemographic Characteristics of Patients Received at the ABRH Emergency Department in 2018

This study recorded a total of 19597 patients who consulted the medical emergency department of the regional hospital of Franceville during the year 2018. This high rate of use of emergencies indicated that the age groups of 15 to 49 years was in the majority with 6405 uses or 32.69% followed by that of 1 to 4 years with 4810 uses or 24.54%, the 50 years and over with 3597 uses or 18.36% and finally, those of 5 to 14 years with 2758 uses or 14.07% and 0 to 11 months with 2027 uses or 10.34%. The distribution according to sex gave a sex ratio (M/F) of 0.99 and a median age of 32 years, the greatest number of cases was recorded among women compared to men in all age groups except for those aged 0 to 11 years and 50 years and over, in which 1011 cases were recorded compared to 1016 cases and 1352 cases compared to 2245 cases among men. An exact binomial test, with a 95% confidence interval, was used to analyze the

significance level of the differences observed in the percentages of use of the CHRAB emergency department by men compared to women, according to the age groups. The test was considered significant when  $p\text{-value} \leq 0.05$ , Table 1.

### 3.2 Distribution of the Rate of Patients Received in the ABRH Emergency Department by Season in 2018

Despite a low attendance during the short dry season (mid-December - mid-February) with 2018 patients or 10.3%, this study distinguished three periods of intense health activity in the CHRAB emergency department. The high vacation period (mid-May - mid-September) corresponding to the long dry season with 7310 patients, i.e. 37.3%, two periods of concern, the long rainy season (mid-February - mid-May 5566 patients =28.4%) and the short rainy season (mid-September - mid-December) with 4703 patients, i.e. a percentage of 24% of patients received. Fig. 1.

### 3.3 Clinical Profiles of Patients

63.16% of observed medical emergencies were specifically infectious and parasitic emergencies, while the non-infectious and parasitic emergencies were 36.84%, as shown in Table 2, which classifies the main groups of diseases or syndromes by order of magnitude.

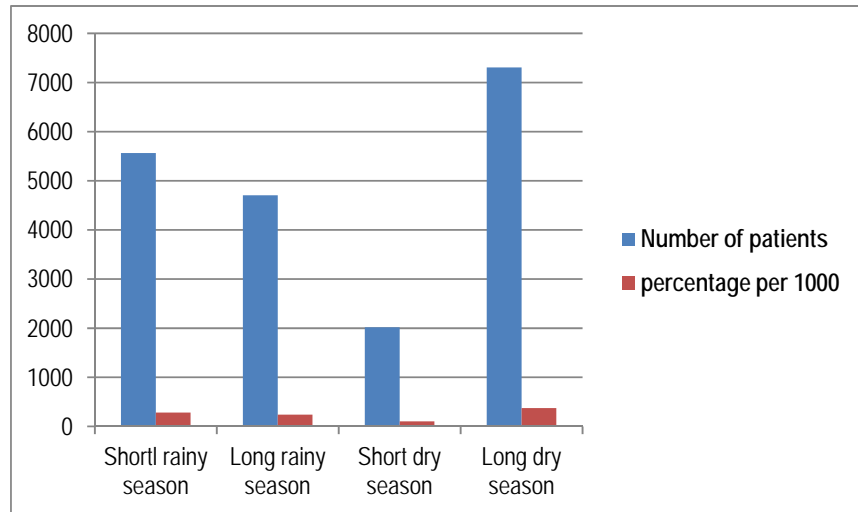
### 3.4 Infectious and Parasitic Emergencies

Among the emergencies related to known infectious diseases, severe malaria was the most common with 4555 cases, i.e. 36.8%. Followed by simple malaria with 3,862 cases, i.e. 31.2%, and acute diarrhoea and gastroenteritis with 1962 cases, i.e. 15.85%, intestinal helminthiasis with 1192 cases, i.e. 9.63%, and other infectious pathologies with 577 cases, i.e. 4.66%.

**Table 1. Socio-demographic characteristics of patients seen in the emergency department at ABRH in 2018**

Age groups	Men	Women	Total	Binomial test		
				p(H)	IC95%	p-value
0_11months	1016	1011	2027	0.50	[0.48 - 0.52]	0.8242
1_4 years	2135	2675	4810	0.44	[0.42 - 0.45]	< 0.001*
5_14 years	1316	1442	2758	0.48	[0.45 - 0.49]	0.0172
15_49 years	3069	3336	6405	0.41	[0.46 - 0.49]	< 0.001*
> 50 years	2245	1352	3597	0.62	[0.60 - 0.63]	< 0.001*
Toal	9781	9816	19597	0.49	[0.49 - 0.50]	0.8

\* significant test



**Fig. 1. Distribution of the number of patients received in the ABRH emergency department by season in 2018**

**Table 2. Infectious and non-infectious diseases diagnosed in patients**

Disease groups	Number of cases	Percentage
Infectious and parasitic	12378	63.16
Non-infectious	7219	36.84
<b>Total</b>	<b>19597</b>	<b>100</b>
<b>Diseases diagnosed in patients</b>	<b>Number of cases</b>	<b>Percentage</b>
<b>Infectious and parasitic diseases</b>		
Severe malaria	4555	36.8
Simple malaria	3862	31.2
Acute diarrhoea, gastroenteritis	1962	15.85
Intestinal helminthiasis	1192	9.63
Tuberculosis (all forms)	125	1.01
Varicella	74	0.6
Dysentery	31	0.25
Other infectious diseases	577	4.66
Total	12378	100
<b>Non-infectious diseases</b>		
Respiratory system	1791	24.81
Digestive system	1028	14.24
Skin diseases	809	11.21
Cardiovascular diseases	800	11.1
Blood diseases	686	9.50
Uro-genital system	588	8.14
Musculoskeletal	510	7.06
ENT diseases	451	6.24
Glandular and metabolic nutrition	296	4.10
Nervous system and senses	260	3.6
Total	7219	100

### 3.5 Non-infectious Emergencies

#### 3.5.1 Diseases of the respiratory system

Rhinitis attacks accounted for 23.39% (419 cases) of consultations in respiratory

emergencies. They were followed by acute bronchitis in 306 cases (17.09%), rhinopharyngitis in 274 cases (15.3%) and bronchiolitis in 224 cases (12.5%), influenza in 184 cases (10.3%), asthma in 154 cases (8.59%), pneumonia in 112 cases (6.25%) and

pleurisy in 57 cases (3.18%). Other diseases of the respiratory system were found in 61 patients (3.4%) Table 3.

### 3.5.2 Diseases of the digestive system

Consultations due to diseases of the digestive system were dominated by acute gastritis and inguinal hernia, accounting for 29.38% and 17.9% of cases respectively. Mouth and teeth diseases came in third place with 15.56% of patients Table 3.

### 3.5.3 Skin diseases

Scabies, erysipelas and mycosis were the most common skin disease emergencies, accounting for 56.61%, 16.32% and 16.07% respectively Table 3.

### 3.5.4 Cardiovascular diseases

The total number of emergencies due to cardiovascular diseases shows that they were dominated by arterial hypertension crises with 76.12% of cases, followed by heart failure with 79 cases, i.e. 9.88% of cases, and the others which are represented with 112 cases, i.e. 14% Table 3.

### 3.5.5 Blood diseases

The predominance of anaemia with 452 cases, i.e. a percentage of 65.89, followed by sickle cell disease with 111 cases (16.18%) and finally other blood diseases with 123 cases, i.e. 17.93% Table 3.

### 3.5.6 Diseases of the urogenital system

Among the diseases of the urogenital system consulted in the emergency services of the

Amissa Bongo Hospital, genital diseases (372 cases or 63.26%) predominate. They are followed by prostate adenoma (58 cases, i.e. 9.86%), nephrotic colic (39 cases, i.e. 6.63%) and others (38 cases, i.e. 6.46%) Table 3.

### 3.5.7 Diseases of the locomotor system

The classification of emergencies due to musculoskeletal diseases shows that arthrosis with 158 cases (30.98%) was in the lead, followed by low back pain (19.22%) and acute rheumatic fever (14.71%) and the others which represent 19.80% of cases Table 3.

### 3.5.8 ENT pathologies

With 134 or 29.71% of cases, tonsillitis was the leading ENT disease, followed by acute sinusitis (26.39%), angina (20.4%) and otitis (16.85%) Table 3.

### 3.5.9 Diseases of nutrition, glands and metabolism

They were divided into 200 cases (67.57%) of diabetes, 16 cases (5.4%) of hypoglycaemia, 11 cases (3.72%) of kwashiorkor and 69 cases (23.1%) of other diseases of glandular nutrition and metabolism Table 3.

### 3.5.10 Diseases of the nervous system and the senses

The classification of emergencies for diseases of the nervous system and the senses shows that cerebral vascular accidents (CVA) with 150 patients, i.e. 57.69%, predominated among diseases of the nervous system and the senses, followed by headaches with 66 cases, i.e. 25.38%, Table 3.

**Table 3. Non-infectious diseases managed in the emergency department of CHRAB in 2018**

Different non-infectious diseases diagnosed in patients	Number of cases	Percentage
<b>Diseases of the respiratory system</b>		
Rhinitis	419	23.39
Acute bronchitis	306	17.09
Rhinopharyngitis	274	15.3
Bronchiolitis	224	12.5
Influenza	184	10.3
Asthma	154	8.59
Pneumonia	112	6.25
Pleurisy	57	3.18
Other diseases of the respiratory system	61	3.4
Total	1791	100
<b>Diseases of the digestive system</b>		
Acute gastritis	302	23.38

<b>Different non-infectious diseases diagnosed in patients</b>	<b>Number of cases</b>	<b>Percentage</b>
Inguinal hernias	184	17.9
Diseases of the mouth and teet	160	15.56
FunctionalColopathy	92	8.95
Umbilicalhernias	74	7.2
Cirrhosis of the liver	58	5.64
Chronic constipation	52	5.06
Gastriculcer	48	4.67
Appendicitis	25	2.43
Other diseases of the digestive system	33	3.21
<b>Total</b>	<b>1028</b>	<b>100</b>
<b>Skin diseases</b>		
Scabies	458	56.61
Erysipelas	132	16.32
Mycosis	130	16.07
Pyoderma	52	6.43
Other skin infections	37	4.57
<b>Total</b>	<b>809</b>	<b>100</b>
<b>Cardiovasculardiseases</b>		
Hypertension	609	76.12
Heartfailure	79	9.88
Othercardiovascular infections	112	14
<b>Total</b>	<b>800</b>	<b>100</b>
<b>Blood diseases</b>		
Anemia	452	6589
Sicklecelldisease	111	1618
Otherblooddiseases	123	1793
<b>Total</b>	<b>686</b>	<b>100</b>
<b>Diseases of the urogenital system</b>		
Genitaldiseases	372	63.26
Adenoma of the prostate	58	9.86
Nephroticcolic	39	6.63
Renallithiasis	38	6.46
Chronicrenalfailure	27	4.60
Varicocele	16	2.73
Other diseases of the urogenital system	38	6.46
<b>Total</b>	<b>588</b>	<b>100</b>
<b>Diseases of the locomotor system</b>		
Arthritis	158	30.98
Lumbago	98	19.22
Rheumaticfever	75	14.71
Sciatica	49	9.60
Acute arthritis	29	5.69
Other diseases of the locomotor system	101	19.80
<b>Total</b>	<b>510</b>	<b>100</b>
<b>ENT diseases</b>		
Tonsillitis	134	29.71
Acute sinusitis	119	26.39
Angina	92	20.4
Acute ear infections	76	16.85
Other ENT diseases	30	6.65
<b>Total</b>	<b>451</b>	<b>100</b>
<b>Diseases of nutrition glands and metabolism</b>		
Diabetes	200	67.57
Hypoglycaemia	16	5.4
Kwashiorkor	11	3.72
Otherdiseases of nutrition glands and metabolism	69	23.31

Different non-infectious diseases diagnosed in patients	Number of cases	Percentage
Total	296	100
<b>Diseases of the nervous system and the senses</b>		
Cerebrovascular accidents (CVA)	150	57.69
Headache	66	25.38
Epilepsy	6	2.31
Other diseases of the nervous system and the senses	38	14.62
Total	260	100

**Table 4. Outcomes of patients seen in ABRH emergency departments**

Patient outcomes	Number	Percentage
Returned home the same day	14315	73.05
Observation for more than 24 hours	361	1.84
Hospitalization in medical services	4395	22.43
Admission to intensive care	173	0.88
Medicalevacuation	88	0.45
Deaths	265	1.35
Total	19597	100

### 3.6 Outcome of Patients after Consultation in the Emergency Room

The outcome of patients after consultation at the emergency room shows that during the year 2018, 73.05% or 14315 patients went home the same day with a prescription or no prescription, while 1.84% or 361 cases were under observation for more than 24 hours, 43% or 4,395 cases were hospitalised, 0.88% or 173 cases were admitted to intensive care, 0.45% or 88 cases were evacuated to other better equipped health facilities, and finally 265 cases or 1.35% of deaths occurred in the emergency department of the Amissa Bongo regional hospital of Franceville Table 4.

## 4. DISCUSSION

The emergency department of the Amissa Bongo Regional Hospital in Franceville was visited by 19597 patients in 2018. This high number indicates a high frequency of visits to the first department of this hospital. This frequency can be essentially linked to the fact that the province of Haut-Ogooué, whose capital is Franceville, would indeed be the Gabonese province where the population is growing most rapidly. At 140%, the population growth rate is the only one in the country to be above 100%. It is therefore 62 points higher than in Gabon (including all regions) [8]. Despite the layout of the health pyramid, which is such that the needs for non-programmed (primary) care are primarily covered

by a community health system [5], the small health units that exist in Haut-Ogooué and mainly in Franceville, such as dispensaries, private clinics and urban health centers, are under-equipped. However, a study conducted in France showed that the number of annual national emergency room visits increased by more than 25% in 10 years, from 2001 to 2011 for a population growth of 7% [9]. According to the data source Statista, a forecast of the total population of Gabon from 2013 to 2023, estimates that the total population would be about 2.08 million inhabitants in 2018 [8]. Knowing that the distribution of types of emergencies in an emergency department is also a function of the structure of the health system of a country, the availability and orientation of other health centers located there [5], it would therefore be wise to adapt to this new situation by better equipping and improving the working conditions in the emergency departments of our hospitals. The Gabonese population is characterized by its great youth according to the UNDP [10], and this study indicates that the average age of the population was  $31 \pm 18.5$  years. However, a study carried out in 2001 in the medical-surgical emergency room of the Aristide Le Dantec Hospital in Dakar found an average age of  $23 \pm 7$  years [11]. In fact, 54.5% of Gabonese patients are under 25 years of age [10]. With a sex ratio (M/F) of 0.99 and contrary to other studies which have noted that the users of the emergency services were mainly men [12], this study observed a significant predominance of women compared to men who used the

emergency services of the Amissa Bongo Hospital in Franceville. This can be explained on the one hand by the fact that sometimes the pathology does not make a gender choice and on the other hand women who are concerned and sensitive to health are always quick to go to a health center in case of illness. Many studies indicate that different age groups sometimes use hospital emergency services. It is therefore very difficult to confirm exactly which age groups are the most frequent users of emergency rooms. This is the case of a study carried out in France which indicated that the use of emergency services was particularly high among children under one year of age and, to a lesser extent, people over 80 years of age [13]. Using a binomial test, this study noted that the rate of use of emergency services at the Amissa Bongo Hospital in Franceville was significant for the age groups of 1-4 years, 15-49 years and finally 50 years and over. This is consistent with the fact that these different age groups are susceptible to various infectious and parasitic or even non-infectious diseases. The present study also observed three key periods in terms of the rate of use (high attendance); a period of long vacations (mid-May - mid-September) corresponding to the great dry season, which is often characterized by cold and wet winds, coupled with a total or partial absence of rain, particularly favors the increase of dust on unpaved roads leading to a high rate of influenza, coughs and allergies of all kinds, and even more often other viral infections that are rampant at this period in Gabon [14]. Two periods of greater concern; the long rainy season (mid-February - mid-May) =34% and the short rainy season (mid-September - mid-December) with a percentage of 38.4% of patients received. This can be assimilated to the fact that the alternation of these seasons during the year favors the advent of many infectious and parasitic diseases and even non-infectious diseases that persist in tropical regions despite the reliability of diagnostic techniques and the existence of treatments [15]. His situation is also due to the existence of several aggravating factors such as long-lasting poverty, a weak medical culture and insufficient basic hygiene of the populations, a precarious sanitary system and climatic conditions conducive to the permanent multiplication of pathogens and vectors [16].

#### 4.1 Infectious and Parasitic Diseases

In the emergency department of the Amissa Bongo regional hospital in Franceville, the

classification of diseases according to their etiology showed that infectious and parasitic diseases were at the top of the clinical picture. This can be explained by the lack of sanitation and even the low socio-economic level of the populations in many regions of the Haut Ogooué province. According to the WHO, certain undefined morbid conditions such as fevers, convulsions or even infectious diseases such as diarrhea, diseases of the nervous system and senses such as headaches, renal failure, are symptoms of malaria (severe malaria and uncomplicated malaria) [17,18]. In this study, malaria represented 67% of the cases of infectious and parasitic diseases presented to the emergency room. In fact, in Gabon, a country located in a tropical zone, despite the progress made in the fight against malaria, it remains a worrying public health problem, as indicated by its morbidity, which varies between 31% and 71% depending on the region [19]. Substantial reductions in malaria transmission, morbidity and mortality have nevertheless been reported in several countries where new malaria control strategies have been implemented [20]. In contrast to a 55.7% predominance of cases of children under one year of age suffering from diarrhea in Ouagadougou [21], this study noted that with 15.85% of parasitic and infectious diseases received in the emergency room of the Amissa Bongo regional hospital in Franceville, acute diarrhea and gastroenteritis were frequent in children aged 1 to 4 years. This can be explained by the fact that at this age, children are particularly exposed to these pathologies for two main reasons. Firstly, at this period, the child's own immunity is progressively developed, while the antibodies of maternal origin decrease. The child is then more vulnerable to infections during this period. This is also the time when the child's dietary diversification begins. If this is not done properly, malnutrition and later diarrhoea and other gastroenteritis can occur [21].

#### 4.2 Diseases of the Respiratory System

Rhinitis attacks accounted for 23.39% (419 cases) of emergency room visits for diseases of the respiratory system. They were followed by acute bronchitis for 306 cases (17.09%), rhinopharyngitis 274 cases (15.3%) and bronchiolitis 224 cases (12.5%), influenza 184 cases (10.3%), asthma 154 cases (8.59%), pneumonia 112 cases (6.25%), and pleurisy 57 cases (3.18%) Other diseases of the respiratory system were found in 61 cases (3.4%) respectively, and affected more the age groups



of 0 to 11 months (680 cases), 1 to 4 years (740 cases), and finally 50 and over (328 cases). This correlates well with the fact that the dry season in Gabon, which is characterized by cold and wet winds, is an ideal time for respiratory infections of all kinds [20]. Children and the elderly, who are at the extremes of life, are the most fragile because the respiratory mucosa in children is not yet mature, whereas in the elderly, this mucosa is more fragile because with age, the immune system is no longer able to react. Mature adults are also at risk, but less so because their immune system is able to defend itself. We must not forget that these subjects also have factors. There are many people who smoke. There are young people who work in the environment, in the open air [22].

#### **4.3 Diseases of the Digestive System**

Emergencies due to diseases of the digestive system reveal that they were dominated by acute gastritis (302 cases or 29.38%) and inguinal hernias with 184 cases or 17.9%. This important prevalence is probably related to the frequency of *Helicobacter pylori* infection [23], as more than 62% of the Gabonese population is infested. Especially, *H. pylori* infection is frequent in children aged 6 months to 7 years and seems to be related to family factors of the child, with a tendency to increase in poor socio-economic environment [24].

#### **4.4 Skin Diseases**

Emergencies due to skin diseases show a preponderance of cases of scabies, erysipelas, and mycosis with percentages of 56.61%, 16.32%, and 16.07% respectively. This can be explained once again by the fact that living in a tropical zone, where the equatorial forest is home to many vectors of skin diseases, the Gabonese population is exposed to many environmental risk factors [25]. Studies have shown that in children the risk factors for erysipelas are often due to chickenpox and *staphylococcus aureus* is often associated with streptococcus. Adults over 40 years of age are usually affected by these conditions, with a sex ratio of 1:1. The risk increases with age [26].

#### **4.5 Cardiovascular Diseases**

The total number of emergencies due to cardiovascular diseases was dominated by hypertensive a crisis (76.12%), which remains

the most frequent antecedent of these diseases. As cardiologist Carol Fadilath Yekini explained to Gabon review, a Gabonese national newspaper, many factors are responsible for this condition. This is the case of obesity, and poor nutrition because with a sedentary lifestyle, the Gabonese population consumes too much salt, too much fat, and too much sugar [27]. In addition, the majority of the population of the Upper Ogooué province suffers from precariousness and, due to lack of financial means, cannot afford the necessary care [28]. This would explain the more or less long delays observed between the onset of symptoms and l'admission [5]. Then heart failure with 79 cases or (9.88%). This prevalence could be explained by the fact that the diagnosis of heart failure syndromes in the conditions of practice in sub-Saharan Africa and even in Gabon is often difficult to make, because relying most often on the clinic and electrocardiogram. Specific biology and other reliable radiological investigations are often non-existent [29].

#### **4.6 Blood Diseases**

Anemia, with 452 cases or 65.89%, was the most common blood disease. This correlates with the fact that many people suffer from anaemia without being aware of it. Indeed, many people in most African countries are affected, both rich and poor. Studies have shown that those most at risk are women, especially during pregnancy and just after childbirth, low birth weight infants, malnourished children, adolescent girls and the elderly without assistance [30]. On the other hand, iron deficiency is one of the main causes of anaemia in Africa, profoundly affecting the cognitive development of young children and thus impairing their learning ability and subsequent social and economic integration [31]. Studies have shown that 24% of carriers of the hemoglobin S trait and 2.2% of SS homozygotes both represent the largest number of cases of emergencies due to blood diseases [32].

#### **4.7 Diseases of the Urogenital System**

Among the diseases of the urogenital system, genital affections with 372 cases (63.26%), prostate adenoma with 58 cases (9.86%), and nephrotic colic with 39 cases (6.63%) were more frequent in adults. This corroborates the work of Paul Martel who indicates that at a certain advanced age, there is on the one hand, an increased vulnerability of women to infections due to a short urethra. On the other hand, in older men, the decrease in prostate secretions

and the appearance of obstructive disorders clearly reduce this inequality. The sterility of the system is dependent on efficient emptying of the bladder to expel urinary pathogens [33]. Due to the lack of available urologists at the regional hospital in Franceville, many patients are often evacuated to Libreville, the Gabonese capital, for better care [34].

#### **4.8 Diseases of the Locomotor System**

Here, arthrosis, with 158 cases (30.98%) in the lead, followed by lumbago (19.22%) and rheumatic fever (14.71%), was more common in people aged 50 and over. This correlates well with the fact that in this age group, many adults in Haut Ogooué who have worked all their lives as workers or labourers in building and public works companies, in factories or as farmers, become inactive in sport after retirement and have a poor lifestyle are vulnerable to it [35]. According to a report by the WHO Scientific Panel through the World Federation of National Societies of Rheumatology, numerous epidemiological studies have been carried out to investigate the role of race, climate, diet, economic factors and the environment in rheumatic diseases [36]. It has been shown that, particularly with regard to osteoarthritis and low back pains, which are important causes of morbidity, especially in the elderly, the identification and correction of risk factors such as obesity, physical inactivity, stress and smoking, can be used to prevent these diseases [37].

#### **4.9 Ear, Nose and Throat (ENT) Diseases**

In Haut-Ogooué, the dry season with its wet and dry winds makes the population vulnerable to several ENT diseases. Thus, among the 451 cases of these non-infectious diseases, i.e. 6.24% of pathologies observed in the emergency room of the Amissa Bongo Hospital, tonsillitis with 29.71% was in the lead, followed by acute sinusitis (26.4%), angina (20.4%), and otitis (16.85%). The age groups most affected were 1 to 4 years old (147 cases), 5 to 14 years old (112 cases), and finally, 15 to 49 years old with 192 cases. This correlates well with the fact that all these diseases occur in a favourable environment, most often due to the cold. It has even been shown that the association of diabetes with otorhinolaryngological pathologies is a classic fact. This association constitutes a real clinical and therapeutic problem due to the

therapeutic difficulty and the seriousness of its complications [38].

#### **4.10 Diseases of Nutrition, Glands and Metabolism**

They were dominated by diabetes with 286 cases or 67.5%. This high percentage can be explained by the fact that a report by the TV5monde television channel entitled "Africa, diabetes is gaining ground" showed that the prevalence rate of diabetes in 2013 in Gabon was 10.7%, the third highest in sub-Saharan Africa after Reunion and the Seychelles (according to the International Diabetes Federation) [38]. This disease, which was thought to be confined to Western countries, is gaining ground in Africa and the sedentarisation of many Gabonese towns is pushing the population to live Western-style by consuming products rich in sugar, salt or fat found in supermarkets. This diet favours overweight or obesity, which is a breeding ground for diabetes. Hypertension-diabetes co-morbidity has even been found, indicating that diabetes, in its evolution, leads to sensory disorders that can mask certain coronary syndromes [38]. Hence the importance of systematically performing an electrocardiogram in the event of atypical syndromes in a diabetic patient [39].

#### **4.11 Diseases of the Nervous System and the Senses**

They were dominated by 150 cases (57.69%) of cerebrovascular accidents (CVA). A stroke is always defined on clinical and pathophysiological grounds by the World Health Organisation, which states that a stroke is a neurological deficit of "rapid" onset, lasting more than 24 hours, linked to a focal or global cerebral dysfunction, which can be fatal, and whose apparent cause is vascular [40]. The majority of economically less developed countries, especially in Africa, including Gabon, are located in the tropical belt. The climatic conditions and the health coverage of the populations are unfavourable. The low percentage obtained in our study shows that the absence of CT scanners at the Amissa Bongo regional hospital in Franceville poses real problems in diagnosing diseases of the nervous system and the senses with certainty, in particular strokes [40]. Only a few cases were confirmed and the patients affected were usually evacuated by medical helicopter to the radiology departments of the Hôpital d'Instruction des

Armées Omar Bongo Ondimba or the Centre Hospitalier Universitaire de Libreville, which had a scanner, depending on their financial means. This considerably lengthened the time required for treatment, thus delaying the prognosis of patients [40].

#### **4.12 Patient Outcomes after Consultations**

Among the different outcomes of patients observed at the ABRH emergency services, this study indicates that many cases were favourable for a large number of patients with 14315 cases, i.e. 73.05% returned home after consultation. This shows that the majority of the patients in this study had a clinical condition that was considered stable and that they were essentially people whose clinical condition did not require recourse to a complementary procedure. Thus, they had gone to the emergency room of the Amissa Bongo hospital in Franceville because they had just a poor assessment of their health or because of the inadequacy of the health care offer in the private sector or even because self-medication at home had not worked. This is close to the 74% rate of emergencies found in a study report by the French Directorate for Research, Studies and Statistical Evaluation [41]. As pointed out by Touré PS and colleagues in 2012 in their study, the phenomenon of "non-urgent" consultations in emergency departments is the basis of several problems in current emergency departments. This leads to overcrowding and a lack of space for some "real emergencies" who are forced to go to private clinics or urban health centres to be treated [5]. Added to this is the extra workload for health care staff, a source of pressure that affects their efficiency and the accuracy of their judgement, leading to general dissatisfaction [5]. In the West, this is an equally present problem [41, 42, 43]. Studies have reported that "overcrowding in emergency departments is partly due to the use of emergency departments by non-urgent patients..." [42]. Overall, 4395 cases or 22.42% of emergency department visits resulted in transfer to an inpatient unit outside the emergency department (medical services). The average duration was  $3.4 \pm 2.3$  days with extremes of 1 day and 4 days. In addition, 361 (1.84%) patients were observed (managed) for more than 24 hours in the very short-term surveillance area within the emergency departments and 0.88% or 173 cases were admitted to the intensive care unit. Excluding deaths in the intensive care unit, the emergency

department alone recorded 265 deaths and medical aetiologies accounted for the majority of these with a rate (1.35%). This rate was lower than the rate found in 2015 by Metogo Mbengono and colleagues who reported that the hospital mortality rate was 2.6% in the emergency department in two hospitals in the city of Yaoundé in Cameroon [44]. Malaria with 36 deaths or 17.14% was responsible for the majority of deaths recorded in the emergency room of the Amissa Bongo regional hospital in Franceville. This, in agreement with Touré PS et al, could be due to a delay in consulting the patients, to which we can add the state of indigence of the latter which sometimes pushes them to wait until the last moment to be brought by the family, or even the late arrival of the prescribed drugs [5]. Severe anaemia, which caused 6.41% of deaths, was the most frequent clinical picture in the emergency room among blood diseases. This can be explained by the fact that many patients were iron deficient, which leads to impaired growth and physical performance, as well as immune defences, increasing infectious morbidity [45]. Among the diseases of the nervous system and the senses, stroke accounted for 4.53% of the aetiologies of emergency room deaths. Many cases of death were due to damage to certain systems such as the respiratory system with bronchiolitis and chronic broncho-pneumopathy (0.75% of deaths), peritonitis (1.9%) for the digestive tract, renal failure which was responsible for 2.64% of deaths and diseases of the urogenital system. 1.9% of deaths. Arterial hypertension accounted for 3.02% of deaths, diabetes (1.9% of deaths) and traumatology and poisoning (head trauma) (5.66% of deaths). All these deaths can be explained by the fact that some patients may have had a medical history, and others had arrived in the emergency department for decompensation in the advanced stages of their heart disease, which posed problems of management, while the intensive care unit was occupied by postoperative patients [5]. We also noted that in this study, there was a significant percentage of patients evacuated (0.44%) to Libreville for better management. This was due to the mismatch between the needs of the patients and the diagnostic and treatment facilities available at the Amissa Bongo Regional Hospital in Franceville.

#### **5. CONCLUSION**

Even if all cases of pathologies observed in the emergency department of the Amissa Bongo

Regional Hospital of Franceville (CHRA) did not require a real emergency, in 2018, infectious and parasitic diseases were recurrent there. Therefore, they require special attention from the health authorities of this hospital, and even of Gabon. In addition, in order to relieve the emergency department of the Amissa Bongo Regional Hospital of Franceville, it would be necessary for the population to acquire in-depth knowledge of the main infectious and parasitic diseases in order to prevent and control them, and to avoid unnecessary trips to the hospital health centers.

## CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the authors.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

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