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## 27 YEARS OF CARDIAC SURGERY IN AFRICA, The experience of La Chaîne de l'Espoir

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## 27 YEARS OF CARDIAC SURGERY IN AFRICA

### The experience of La Chaîne de l'Espoir A Global Concept

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La Chaîne de l'Espoir is a French NGO (non-governmental organization) founded in 1988. It aims to strengthen the health systems in order to give everyone, especially children of developing countries, the same chances of survival as in developed countries. The NGO does prevention and screening from an early age and provides care and surgery (especially cardiac) to meet the most urgent needs of children and their mothers, training, and transfer of skills to local teams, and construction and equipment of hospital facilities adapted to local needs.

La Chaîne de l'Espoir is present on the African continent through partnerships with Benin, Burkina Faso, Cameroon, Chad, Congo Brazzaville, Ivory Coast, Guinea-Conakry, Madagascar, Mauritania, Mali, Mozambique, Senegal and Togo.

Among these countries, two have medical centers of reference where cardiac surgery is performed: Mali, with the André Festoc Center in Bamako, and Senegal, with the Cuomo Pediatric Cardiology Center of Dakar.

### Transfer of children to France

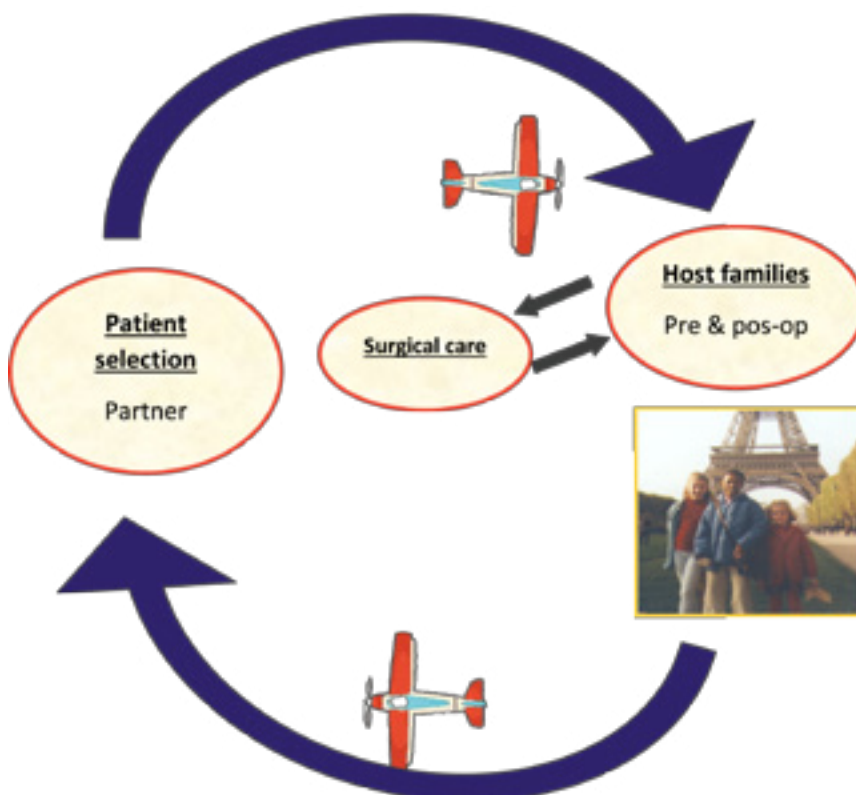
Transfers of children to France began in 1989. To date, 5,000 children have been transferred. The process includes a local selection, a request for visas allowing the transfer, a residency with volunteer families, follow-up care and rehabilitation, an echo check-up and treatment, and a return home.

These transfers are expensive without any relaying of medical training for foreign doctors. This is the reason why the NGO reaches for the construction and management of local hospitals associated with training.



Countries of intervention of La Chaîne de l'Espoir in 2021.

### THE CDE SYSTEM



## The hospitals where La Chaîne de l'Espoir is a major partner

### ***Istitut du Coeur de Maputo (Heart Institute of Maputo) - Mozambique***



La Chaîne de l'Espoir is at the origin of the Heart Institute of Maputo project in Mozambique and is the consortium's president.

Partnerships include La Chaîne de l'Espoir UK and Portugal, Amigos de Coracao (Mozambique), Heart for All (Switzerland), and the Red Cross Children's Hospital.

The specialties of this center are cardiology, diagnostics, and ophthalmology as well as cardiac and general surgery.

From 1998 to 2001, 4 annual grants from the French Ministry of Foreign Affairs were conceded.

From 2002 to 2019, 11 cardiologists and 4 surgeons, 2 anesthetists and paramedical staff were trained.

In the self-supporting Heart Institute, 3 children are operated on each week as well as 170 adults and children each year. On average, 25 children undergo surgical procedure during each international mission.

The construction and equipment budget reached \$4,8 million, including \$22, million for equipment.

The support budget reached \$72,000 in 2018.

### ***Centre Cardio-Pédiatrique Cuomo (Pediatric Cardiology Center) -Dakar, Senegal***



La Chaîne de l'Espoir is the leader of the Cuomo Pediatric Cardiology Center of Dakar project and provides training support and management of the center. The NGO is a member of the steering committee. Partnerships include the Cuomo Foundation, the FANN Hospital and the Senegalese government.

This center is totally autonomous from the medical point of view. Its specialty is pediatric cardiac surgery.

607 surgeries have been conducted in the center since 2017. Since then, the hospital has become a regional training center for doctors and paramedical staff from West Africa. The allocated budget amounts to \$6 million for construction and equipment and \$500,000 for the construction of the Children's Pavilion. The 5-year support that was granted is equivalent to \$2 million.

### ***André Festoc Pediatric Surgery Unit at the Hopital Mère-Enfant du Luxembourg (Mother-Child Hospital Luxembourg) - Bamako, Mali***



La Chaîne de l'Espoir is the operating partner and delegated owner for the construction and implementation of the *André Festoc Pediatric Surgery Unit at the Luxembourg Mother-Child Hospital in the Bamako project*. Partnerships

include the Luxembourg Mother-Child Hospital, *Fondation pour l'Enfance*, the Pierre Fabre Foundation and the Mulliez Institute and the Le-foulon-Delalande Foundation. The specialty of the center is pediatric cardiac surgery.

34 medical personnel members were trained from 2017 to 2019 in Vietnam in Centre Médical International (Ho Chi Minh).

259 heart surgeries were conducted in the hospital between 2018 and 2019 during international expert missions.

The construction and equipment budget amounted to \$3,4 million. The budget allocated by La Chaîne de l'Espoir for this project reached \$770,000.



### **Tengandogo Hospital - Ouagadougou, Burkina Faso**



The CHU Tengandogo in Ouagadougou,

Burkina Faso, was built and equipped by the Chinese government. The first open-heart surgery was conducted in 2021 by Pr. Gérard Babatasi, and others were carried out during several missions by the Pr. Gabriel Ciss from Bamako in the frame of intra-African cooperation. Today, the missions need to be focused on pediatric cardiac surgery.

### **Institut du Coeur d'Abidjan (Heart Institute of Abidjan) - Abidjan, Ivory Coast**



The missions need to be focused on pediatric cardiology. There is also a need for a new project for pediatric cardiology in HME of Bingerville.

### **Soavinandrina Hospital - Tananarive, Madagascar**



This project is currently in progress since 2021. La Chaîne de l'Espoir has a role in the renovation of the Military Hospital and in the construction of an operating theatre for cardiac surgery.

The training of 2 surgeons, 2 anesthetists, 2 nurse anesthetists and 14 intensive care nurses is planned.

The yearly training program includes 20 surgical and 12 medical and paramedical missions. Training in Senegal is scheduled for 2022.

100 closed heart procedures were conducted in 2021.

The global budget for this project amounts to €1,5 million.

### Centre National de Cardiologie (National center of cardiology) - Nouakchott, Mauritania



The Nouakchott authorities asked for the initiation of this project. Pr. Olivier Raisky conducted an exploratory mission in 2020. The first pediatric open-heart surgery was performed in April 2022.

### Hospital buildings: Infrastructures to strengthen health systems



Hospitals built by La Chaîne de l'Espoir

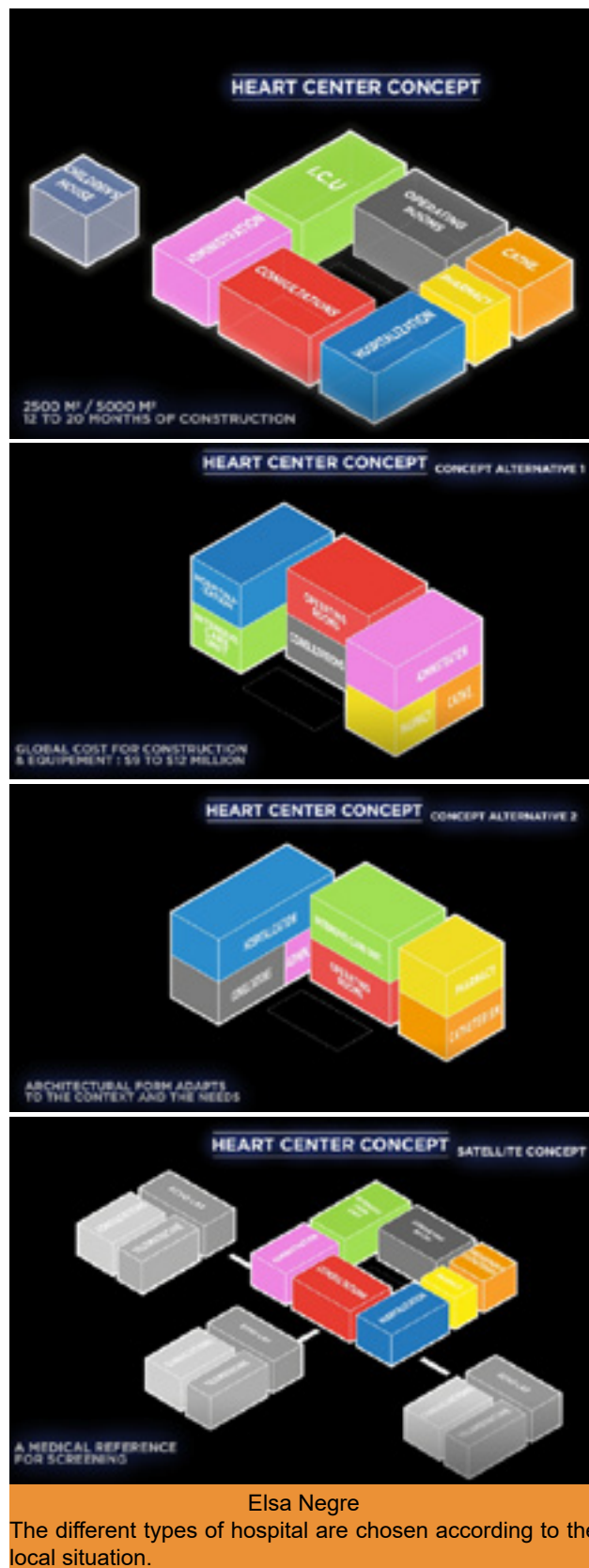
### Infrastructure and Medical Equipment

La Chaîne de l'Espoir is involved in several projects of construction, equipment, and rehabilitation of hospitals. Mozambique, Senegal, and Mali have benefited from this help.

Each year, 17 tons of medical equipment (adapted to pathologies and specific local needs, repair facilities, local maintenance services, and others) are sent to foreign hospitals.

Here below is a diagram of the Heart Center

Concept of La Chaîne de l'Espoir and its different alternatives.



Elsa Negre

The different types of hospital are chosen according to the local situation.

## The Echoes Program

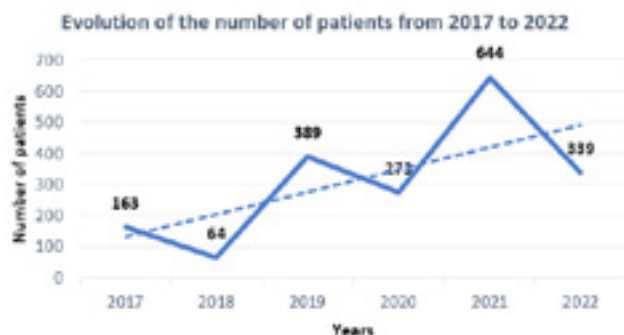
Echoes is a tele-ultrasound platform allowing diagnosis through real-time sessions with foreign doctors and La Chaîne de l'Espoir's specialists. It enables the training in pediatric cardiac ultrasound of the NGO's network doctors.

The platform supports the development of cardiac surgery programs by strengthening the capacity of local health care teams and giving a preview of patients' pathologies to facilitate the surgical missions.

It also assists the NGO's partner centers by providing training and giving a second opinion on complex cases.

Once the children's medical records are evaluated, the specialists of La Chaîne de l'Espoir decide whether a transfer to France is needed (or to other partner countries). The NGO assures a following-up of the operated patients.

644 children were examined through Echoes sessions in 2021, representing an increase of 236 % compared to the previous year.



Echoes live conference between Paris and Pnom Penh. Any country in the world could be connected with an expert when an Internet connection is correct

## Summary

Pediatric cardiac surgery is challenging in low-income countries such as in Africa. La Chaîne de l'Espoir is a french NGO devoted to the health care of poor and sick children.

This article presents the actions La Chaîne de l'Espoir. It introduces, in particular, the transfer to France system of sick children from developing countries for surgical care, the growing tele-expertise program in cardiac ultrasound, as well as the main stages of the activity in Africa since the creation of the NGO involving seven centers allocated in different countries of the continent.

## Conclusion

La Chaîne de l'Espoir is devoted to children's care and provides educational programs for medical and para-medical local teams. Hospital building and management are parts of our concern.

