

ARTICLES OF THE REGIONAL CONFERENCE ON THE CHALLENGES OF
TRAINING IN PLASTIC SURGERY AND RECONSTRUCTION IN WEST AFRICA

CHU DE TREICHVILLE - ABIDJAN - IVORY COAST 26th TO THE 28th
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Introduction

The idea of a conference was born from a meeting between Prof. Valérie DJE BI DJE and the Swiss 2nd Chance Association during a workshop organised in Maputo in April 2018 under the auspices of COSECSA, with which 2nd Chance co-operates in training surgeons in reconstructive surgery.

The objectives of this event which brought together 21 professors and surgeons from 8 West African countries (Benin, Ivory Coast, Ghana, Guinea, Mali, Nigeria and Senegal) were defined as follows:

- To establish an inventory of needs in plastic and reconstructive surgery in the sub-region.
- To present the activities of the 2nd Chance Association in the development of reconstructive surgery in countries with limited resources.
- To incorporate conference recommendations into WACS training objectives.
- Finally, to develop a regional training model and promote our little-known specialised field.

This conference should allow us to promote our specialised field and develop a regional training model that 2nd Chance would like to support.

Acknowledgements

We would like to thank

- His Excellency, Professor SORO, Chief of Staff and Representative of the Ministry of Public Health of Ivory Coast, who sponsored the opening ceremony of the Conference
- Mr. Etienne YAO, Director of the University Hospital of Treichville, who hosted the event
- Professor Serge AGOH, Vice Dean in charge of Postgraduate Pedagogy, representing the Dean of the UFR of the ADMs.
- Professor Richard KADIO, Honorary President of the Conference, Full Professor in PRAS, for his contribution to the debates.
- Dr. Pierre QUINODOZ, President of the 2nd Chance Association, who financed the event and facilitated its realisation.

Observation

Africa has only about 15 doctors per 100,000 inhabitants, while Switzerland has 390 doctors. At the same time, about 64,000 doctors trained in Africa work outside the continent¹. The training of surgeons in the Universities of Africa does not include, or includes too little teaching of plastic and reconstructive surgery. Because of lack of training and the means to perform even the simplest operation, African surgeons, though highly motivated, unfortunately must often give up the idea of performing repair operations for most cases that are not considered to be life-saving.

Plastic and reconstructive surgery includes surgical pathologies, congenital or acquired, located at the skin surface and underlying structures of any location (in the head, trunk or extremities). It is defined in particular by the healing and correction of the external shape of the body - including the face and the hand - and the restoration of all their functions.

This specialised field suffers from a chronic shortage of human resources in surgeons and qualified paramedical personnel, aggravated by a lack of qualifying training in French-speaking black African countries, and also increasing difficulty in obtaining training abroad.

There is also an almost total absence of premises dedicated to hospitalisation, consultations and operating theatres, as well as secretarial services and file archiving. Moreover, the structures benefiting from Plastic, Reconstructive and Aesthetic surgery services (PRAS) do not benefit from complete technical platforms, combined with a lack of microsurgery, the rarity of prostheses (skin or breast implants) or modern dressings, VAC etc.

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State of affairs by country

Benin

This francophone country of West Africa, Benin covers 114,763 Km² with a population of 11,496,140 inhabitants. Benin is organised into 12 departments. To practice plastic, reconstructive and aesthetic surgery (PRAS) in Benin, practitioners must hold a State Doctorate in General Medicine and a Specialised Studies Diploma in PRAS. To date, only one (1) PRAS surgeon has been appointed at the CHU of Cotonou for the last 2 years. She cooperates with trauma specialists and the orthopaedic department. Burns are a public health problem, but it is still very difficult to convince patients and the medical team that they should be treated surgically. The Smile Train organisation finances cleft lip and palate assignments. The department develops a database created during outreach missions. It is indeed essential to make this specialised treatment known, in order to strengthen treatment management and improve the technique.

INFORM - TRAIN - RETRAIN: three key words for the future.

To date, there is no national training of PRAS.

¹ www.Statistiques-mondiales.com/medecins-afrique.htm

Ivory Coast

Ivory Coast covers an area of 332,462 Km² and has a population of 24,253,934 inhabitants. Yamoussoukro is the capital. It is bordered on the east by Ghana, on the north by Burkina Faso and Mali, and on the west by Liberia and Guinea. At the health level there are 80 districts, each with at least one general hospital. There are five university hospitals (CHU), including four in Abidjan, the economic capital with nearly five million inhabitants and one in Bouaké, the most populous city in the rest of the country.

Regarding plastic surgery we note:

1. The Department of Plastic Surgery, Reconstructive, Aesthetic, Surgery of the Hand and Brulology, is located in the University Hospital of Treichville in Abidjan. The first reference centre for plastic surgery in Ivory Coast, was created in 1997 by Pr RICHARD-KADIO MICHEL, the only Professor in Plastic Surgery in the Ivory Coast and the sub-region. The CHU Treichville, created in 1938 as a pavilion structure on an area of 42 hectares, is the largest hospital in Ivory Coast with 756 hospital beds of which only 14 beds are intended for plastic surgery. The PRAS department is a cross-country service that receives patients of any or no national social status.
- Staff Composition (19)
 - A Head of Department, Associate Professor (AFSAS diploma in PRAS, trained in Bordeaux)
 - An Associate Professor (Diploma of the French College for PRAS trained in Paris and Marseille)
 - A Head Clinic Assistant (currently in training in France)
 - Two (2) Hospital Assistants
 - Three interns
 - Three students on thesis work
 - Five (5) nurses
 - Three (3) caregivers.
 - Composition of the service:
 - One consulting room.
 - An operating room in the operating block, with 5 rooms for scheduled surgeries and 2 rooms for emergencies shared with other specialised surgery.
 - A hospitalisation service with a capacity of 14 beds
 - One dressing room
 - One care room for nurses
 - An office for the head of department and three for his medical staff
 - The activities of the plastic surgery department are: hospital (consultations, hospitalisation emergencies, care etc), and university, with the supervision of medical students. (Bachelor's degree 3, Master 1, PhD 1 and 2) as well as surgeons specialising in traumatology-orthopaedics, general surgery and paediatric surgery.
 - The different pathologies supported are:
 - Cutaneous pathologies: 45% of operative activities with tumours (keloids, giant congenital nevi, dermato-fibroids DARIER and FERRAND) and the after-effects of burns.
 - Infections: necrotic fasciitis, soft-tissue infections of the hand and elephantiasis
 - Traumatic pathology: 23% of surgical activities with:-

- PDS coverage during exposed leg fractures in collaboration with trauma specialists and complex hand trauma
- Parietal reconstruction, congenital malformations or degenerative pathologies etc.

2. Raoul Follereau Institute of Ivory Coast (IRFCI)

It is located in Adzopé 100 km east of Abidjan with 2 plastic surgeons (PRAS Diploma of Brussels and one from Tunisia) taking charge of the after-effects of Buruli ulcer leprosy. The institute has two operating rooms and in addition a hospital building to take charge of other patients requiring plastic surgery.

3. Other PRAS structures

- Department of Traumatology-Orthopaedics of CHU d'Angré with the integration of a plastic surgeon, Associate Professor (Diploma of the French College of PRAS trained in Nantes)
- Institute of Plastic and Reconstructive Surgery created with the Meredith Foundation. The head is the Director of the National Program to combat Buruli Ulcers, plastic surgeon, associate professor (Diploma of the French College of PRAS and also trained in Switzerland) taking care of the after-effects of Buruli ulcers
- Private facilities with a plastic surgeon, former academic (Graduate in PRAS from Brazil).

In addition to the 8 plastic surgeons, it should be noted that there are more than a dozen maxillofacial surgeons taking care of pathologies and traumas of the face, as well as paediatric surgeons operating on congenital anomalies in children (clefts, hands and OGE).

The aim of our service is the training of specialists, hence the need to create a DES (Specialised Studies Diploma) for PRAS accredited by the West African Health Organisation (OAS), in the face of significant demand for young doctors or surgeons with a degree in other surgical specialised fields from both Ivory Coast and other French-speaking African countries.

Keywords: train - equip

Ghana

Ghana has a population of 29,463,643 people with 5 tertiary hospitals. The ratio of doctors per inhabitant is 1: 10,450 (2017) and for nursing staff it is 1: 1,510 (2004). The exact number of surgeons is not confirmed.

Established in 1954 the Komfo Angoye Hospital has developed around the treatment the after-effects of burns, breast pathologies, orofacial clefts and Buruli Ulcers.

Prior to 1992, PRAS was provided by international missions (Operation Smile, Interplast Germany and Turkey) in Korle-Bu and Komfo Ankoye hospitals (Teaching Hospital KATH).

From 1992, a group of Argentine plastic surgeons (Dr. Jack Mustadé and Mrs. Evelyn Tay) developed at KATH the International Project of Plastic and Reconstructive Surgery in Ghana with Dr. Martin Webster, to separate the burn treatment centre from the other pathologies.

In 1998, the centre received WACS accreditation for training residents.

From 2001 to 2009, a centre specifically dedicated to the treatment of severe burn victims was installed, creating the first burn centre, benefiting from an anaesthetic machine in the country, made up of 3 surgeons and 6 specially trained nurses.

Rotary International spearheaded by Dr. AM Morris (President of ReSurge Africa) provides surgical equipment and care for some patients.

Phase 4 of the project has resulted in the development since 2009 of a modern centre for the management of emergencies and accidents. This centre is to this day the largest centre in West Africa with a new burns unit, and a regrouping of PRAS care, neurosurgery, orthopaedics and emergency medicine and trauma. The rooms are equipped for complex surgical procedures that accommodate patients suffering with varying degrees of injury, malformations or deformity. The service can support patients in critical conditions requiring follow-up according to the standards (Burns Centre).

In 2015, the first plastic and reconstructive surgeon was fully trained at the centre and graduated from WACS. Two residents are currently in their last year of training. The Centre plans to train at least twenty plastic surgeons in the next decade. Finally more than 150 scientific articles were produced by the staff of the Centre.

However, the challenges are still numerous:

- Absence of operating rooms exclusively dedicated to the management of burns.
- Limited funds for burn treatment
- Lack of physiotherapy and a rehabilitation centre
- Inadequate funds for research.

Guinea

With an area of 245,857 km², Guinea has a population of 11,745,189 inhabitants (2013). Guinea is sorely lacking human resources in the medical field. In 2016, only 5% of the BIB was invested in health expenditure (WHO recommendation 15%).

The PRAS department was established in 1998. Dr. Kaba, trained in Hungary and Bulgaria, was brought in, and he treated successfully the President's daughter for a burn. The authorities' awareness of the role of PRAS led to the creation of a 4-bed department in Conakry. A few years later, a serious accident with a tanker confirmed the importance of

developing a unit for serious burns. This centre, which includes two anaesthetists, is now a reference point, in cooperation with paediatrics, trauma and dermatology.

In 2019, after a two-year refurbishment, 12 beds will be available in 2 separate buildings (for reconstructive surgery and severe burns).

Dr. Kaba supervised 11 theses in PRAS but none of the PhD students stayed in Guinea. One is in Togo and one in Chad.

The Smile Train organisation handles around a hundred cases of cleft lip and palate a year.

The lack of pre-doctoral and post-doctoral degree training poses real questions for the future. Possible options could be structured around regional organisations such as WAHO (West African Health Organisation) or WACS (Western African College of Surgeons).

Mali

With a total area of 1,241,238 km², Mali has a population of 17,994,837 inhabitants with two (2) plastic surgeons trained for the entire population.

In particular, they deal with the management of PRAS emergencies and pathologies, traumas and infectious or benign tumour pathologies, as well as the after-effects of burns.

The main challenge in Mali, apart from the lack of material for some operations, is the total absence of professionals recruited and the unavailability of plastic surgery modules in the university curriculum. Indeed, the trained surgeons are currently exclusively abroad (in Morocco, Canada and Switzerland). There is no more training today in the basic techniques of PRAS in the curriculum of general practitioners.

Nigeria

With more than 190 million inhabitants, Nigeria is the heavyweight of the continent. It was at the end of the Biafra War in 1970 that the Nigerian authorities decided to develop PRAS in the country. Then came the creation of local training, supervised by experienced people from abroad.

The first FCS in reconstructive surgery under the WACS was completed in 1989. In the 90's there was the creation of the Nigerian Association of Plastic Surgery, and another association for burns. Today, there are 150 plastic surgeons practising in the country, and many others have taken positions abroad.

There are many treatment centres, some specialising in the treatment of severe burn victims, and training hospitals.

These bodies are by no means able to cover the needs of the population. With very limited insurance cover plus the cost of treatment many challenges still remain.

It would be important to seek the support of the private sector (industry) and to strengthen the training of staff in anaesthesia.

Senegal

At the western tip of Africa, with a population of 15.85 million people, Senegal covers an area of 196,839 km². The 14 regions of the country each have a Regional Hospital Centre. Dakar,

the capital, benefits from 3 National University Hospital Centres (CHUR) in which is established a PRAS Centre led by Prof. Anne-Aurore SANKALE.

Three plastic surgeons operate in Senegal. Two are Associate Lecturers and the third is Master Assistant. All are former interns of the Dakar Hospitals, holders of General Surgery DES, trained in PRAS in Marseille (Diploma of the French College of PRAS), Brussels (CUFMS in CPR) and Strasbourg (Diploma of the French College of PRAS).

In the absence of local diploma training, surgeons can acquire a Basic Diploma DES in general surgery, a DES in orthopaedics or traumatology and pursue a Diploma Course abroad (at least 4 semesters in a PRAS department).

The PRAS service in Dakar shares its departmental premises in conjunction with general surgery and paediatric surgery. It combines:-

- 3 plastic surgeons
- 1 assistant trainee
- 1 DES in Paediatric Surgery
- 1 nurse
- 1 secretary
- 1 orderly

The department deals with PRAS emergencies through initial care for surgical emergencies in General Surgery, Paediatric Surgery and Orthopaedics-Traumatology.

The care staff consists of interns, the DES in paediatric surgery, the assistant and a plastic surgeon on call.

In the absence of a Burns Centre in Senegal, PRAS emergencies specifically cover acute burns, depending on the severity, hospitalisation in intensive care, paediatric surgery or orthopaedics.

The department provides treatment for post-traumatic skin loss / infections, debridement and surgical emergency trimming, as well as follow-up and loss of substance coverage by the plastic surgeon / orthopaedics trauma (adults).

PRAS surgeons treat congenital pathologies such as nasolabial-palatal clefts in cooperation with the maxillofacial and ENT surgeon.

An incomplete multidisciplinary team facilitates and participates in the organisational humanitarian missions like Smile Train or Amref, which offer free services for patients. They provide training for outpatient paediatric and ENT surgeons.

Malformations of the limbs (syndactyls, amniotic bands etc) are supported by teams made up of plastic surgeons / orthopaedists as well as the after-effects of burns needing PRAS (retractile scars, hypertrophic scars and unstable scars).

After diagnosis by the dermatology department, the PRAS service deals with tumoral pathologies (keloids and benign cutaneous tumours and malignant skin tumours).

The parietal reconstructions are carried out in collaboration with neurosurgery, thoracic surgery, visceral surgery, oncology or ENT.

The PRAS department works with cancer services, oncology and radiotherapy, with PRAS breast pathologies, such as breast reconstructions, even if the diagnoses are often late and impact patient survival.

Plastic surgeons take care of mammary dysmorphia (hypertrophy and hypotrophy, gynaecomastia and asymmetry). There is always a significant problem with the availability and cost of prostheses.

Presentation of regional organisations

CAMES

CAMES was created by the Heads of State of the African and Malagasy Common Organisation (OCAM) following the 1968 Niamey Conference. The Convention on the Status and Organisation of CAMES was signed on April 26, 1972 in Lomé.

Since its creation, several missions have been assigned to CAMES:

- Providing for and promoting understanding and solidarity between Member States,
- Establishing permanent cultural and scientific cooperation between the Member States,
- Collecting and disseminating all academic and research documents,
- Preparing draft conventions between the States concerned in the fields of higher education and research, and contributing to the application of these conventions,
- **Coordinating higher education and research systems, in order to harmonise programs and recruitment levels in the different institutions of the member countries.**

It is in this last function in particular that CAMES is important for the definition of standards of development of the Diplomas of Higher Studies: DES (Initials of the specialised field) Ex. DES CAR or DES BIO.

Length of studies

- 4 years for Medical Specialised fields
- 5 years for Surgical Specialised fields

It is still a problem to obtain a common core of surgical specialised fields (Preparatory Year).

The conditions for starting a DES are regulated

Administrative requirements

- A Regulatory Text authorising the creation and operation of a DES, duly signed by the competent authorities

Conditions regarding Human Resources

- Must have Three Rank Magisterial Teachers (Rank A) from the specialised field, including 1 Full Professor.
- The DES Coordinator is the most senior full professor

Starting Conditions (Governance)

- The training is monitored by a Pedagogical and / or Scientific Committee validated by the competent academic authorities
- Infrastructure and Equipment Conditions
- Existence of a university hospital application service for internships and practical teaching with an appropriate technical platform

The Creation of a DES in PRAS requires a whole set of parameters to be validated by the competent authorities.

- I. IDENTIFICATION AND LOCATION**
- II. SUMMARY**
- III. FOUNDATION / JUSTIFICATION OF TRAINING OFFER**
 - 1: Existence of a training request
 - 2: Establishment of links with economic operators in the area
- IV. DEFINITION AND STRUCTURE OF THE TRAINING OFFER**
 - 1: Adequacy with scientific policy and the national and international context.
 - 2: Consistency with regard to the project of the institution and its resources
- V. TEACHING ORGANISATION**
 - 1: Organisational aspects of pedagogical work
 - 2: Determination of Teaching Units in accordance with CAMES / UEMOA standards
 - 3: Scientific, technical, technological and professional potential
 - 4: Assessment methods for learners
 - 5: Assessment methods for teaching
- VI. PARTNERSHIPS AND INTER-ESTABLISHMENT CONVENTIONS (NATIONAL, REGIONAL AND INTERNATIONAL)**
- VII. EDUCATIONAL MODEL**
- VIII. RESOURCES**
 1. Human Resources
 2. Provisional budget
- IX. NOTICE OF THE UFR COUNCILS CONCERNED AND REMIT OF THE DEANS**

WACS

The College of Surgery of West Africa is a well-established organisation under the umbrella of the African Health Organisation, and its members are shared out along the West Coast of Africa, consisting of 7 Faculties. With observer status in conjunction with the African Union and ECOWAS, it helps to facilitate access to health.

Training within WACS is organised in accredited centres that are regularly evaluated. Trainers must be able to demonstrate 5 years of service in the specialised field concerned. Training Centres are recognised by the States. Candidates, in order to begin their training, must apply for a degree in Medicine (MD). The training includes a common core in general surgery with

an entrance examination (QCM) in one of the currently accredited centres (in Nigeria, Ghana, Sierra Leone and Cameroon). MCS Training is available in French or in English. The full program covers 6 or 7 years. The curriculum is subject to regular evaluation and the trainers are also monitored.

The French-speaking countries are well integrated into WACS with members of the Council, a future president (Prof Serigne Magueye GUEYE Senegal). Support is provided to the training centres.

The accredited centres influence the agendas. Speciality Committees oversee the programs. With regard to PRAS, it would be very important to be able to accredit training and examination centres in French.

2nd chance Association

Switzerland has a long tradition of reconstructive surgery. The genesis of 2nd Chance lies in the development of training programs funded by the Swiss Cooperation in the early 2000s, following the attacks in Nairobi and Dar Es Salaam.

The model developed by the Association is built around training, treatment and the commitment to the promotion of reconstructive surgery. Our philosophy is cooperation, coaching and training.

Training (basic course)

- Basic course in plastic surgery:
- Management and treatment of wounds
- Patient informed consent, WHO safety list, and patient registration
- Management of local anaesthesia
- General principles on skin grafting
- Skin grafts
- Skin flaps: general principles
- General management of acute burns
- Adhesion management following burns
- The basics of cleft lip surgery

Advanced courses in plastic surgery:

- Grafts: cartilage, fat, bone and tendons
- Flaps: perforated, fascio-cutaneous, and musculocutaneous.
- The concepts of general anaesthesia applied to plastic surgery
- Acute burns: the management of burn victims
- The after-effects of burns: the specific treatment of the joints
- Clefts in lip and palate. The recovery of clefts and deformations of the palate.
- The reconstruction of the face: specific procedures (eyelids, nose and mouth).
- Breast reconstruction: mammary reconstruction, reduction, mastopexy.
- Introduction to research and publications.

Printed books

- "Wound healing, grafts and basal skin flaps", 2008.
- "Cranio-facial traumas", 2010.
- "The management of severe contractures Vol I", 2010.
- "The management of severe contractures Vol II", 2013.
- "Clefts in the lip and palate. Craniofacial clefts ", 2016.
- "The management of severe contractures. Basic Principles", 2017
- "The management of severe contractures. Advanced Procedures ", 2018.
- e-books
- "Clefts in the lip and palate. Craniofacial clefts "
- "The management of severe contractures. Basic terms"

e-books

- "Clefts in the lip and palate. Craniofacial clefts "
- "The management of severe contractures. Basic terms"

Series of surgery videos:

- Dissection of skin flaps on corpses: 32 flaps
- Series of surgical videos
- A series of surgery "Live": videos: 12 videos

Developed for the past 5 years in the East Africa region in cooperation with COSECA, this program could enable the western region to strengthen the development of PRAS training programs.

Conclusions

Plastic surgery is considered to be surgery for the rich, because of the aesthetics, and its teaching represents only 1 / 10th of the training in West Africa.

The integration of a basic training in PRAS at the pre-doctoral level would allow the general practitioner to understand the mechanisms of wounds and eschars, to evaluate the severity of a burn, or to recognise a serious injury of the hand, which can make a housewife or a worker a handicapped person for life.

The development of the discipline of plastic surgery in these days is unavoidable. It allows the paediatrician to reassure parents at the birth of a child with a congenital malformation, to assist the traumatologist in the management of any trauma, it promotes the treatment of the sequelae of Buruli leprosy once it is cured by the dermatologist, and it restores hope for breast reconstruction after a mastectomy performed by the oncologist gynaecologist.

Actions required

PRAS is a young specialised field in black French-speaking Africa. In order to develop, it must have planning and method based on regional solidarity.

1. Creation of qualifying training in PRAS in Western French-speaking Africa
 - Pooling resources and partnership (pedagogy)
 - Development of modules for non-specialists
 - Training of paramedical personnel
 - Construction of dedicated premises (hospital modules)
 - Raising the technical platform
2. Alignment with WACS
 - Validate WACS membership for PRAS Professors in the region.
 - Participation in the Regional Conference held in Dakar in January 2019.
 - Push accreditation of one or two French-speaking centres for training and exams.
3. Development of 2nd Chance activities in the region
 - The definition of training credits for courses
 - Signing a framework agreement with WACS and 2nd Chance at the end of January 2019 in Dakar.
 - Scheduling a course in the second term of 2019 in Ghana
 - Planning a course in 2020 in a French-speaking country.