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Establishment of a National Immunization Technical Advisory Group in Côte d'Ivoire: Process and lessons learned

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ABSTRACT

In January 2010, Côte d'Ivoire became the first GAVI-eligible country in sub-Saharan Africa to establish a National Immunization Technical Advisory Group (NITAG). The Côte d'Ivoire "National Committee of Independent Experts for Vaccination and Vaccines" (CNEIV-CI) was created to strengthen national capacity for evidence-based policy decisions with regard to immunization and vaccines. The primary reasons for success in Côte d'Ivoire were a strong political will, the availability of sufficient national expertise, a step-by-step country-driven process, and the provision of technical assistance to the Ministry of Health. The challenges included operating within the socio-political crisis, and initial reluctance from some stakeholders due to the potential overlap with other existing committees. The latter rapidly dissolved over the course of numerous meetings held with the SIVAC Initiative to clarify the mandate of a NITAG.

1. Introduction

Immunization is an important, cost-effective and successful public health intervention [1]. With the increase in resources allocated to immunization through the GAVI Alliance [2], there have been important changes in vaccination programs and policies. Multiple health priorities, limited human resources and logistical capacities [3], and the high cost of vaccines relative to limited public funds have increased the need for evidence-based decision making in immunization programs. Evidence-based decision-making processes can provide more support for immunization programs than other health interventions. Meanwhile, within immunization programs such processes can inform decisions related to new vaccine introduction, prioritization, schedules, target groups and other issues linked to immunization and vaccines.

An important step that countries can take is to establish a national expert group to advise the Ministry of Health (MOH). To date, most industrialized countries and some developing countries have already constituted National Immunization Technical Advisory Groups (NITAGs) to guide immunization policies [4]. These multidisciplinary national committees include expertise in various areas (epidemiology, economics, public health, anthropology, pediatrics, pharmacology, vaccinology, and infectious diseases) and are responsible for providing recommendations on immunization and vaccines to the minister of health. The World Health Organization (WHO) now recommends that all countries establish national immunization and vaccination committees [5].

To help low- and middle-income countries achieve this goal, the Bill & Melinda Gates Foundation provided funding to the Agence de Médecine Préventive (AMP), in partnership with the International Vaccine Institute (IVI) to develop the Supporting Independent Immunization and Vaccine Advisory Committees (SIVAC) Initiative [6]. This article describes the methodology used by the national authorities in Côte d'Ivoire with the support of the SIVAC Initiative to establish the first sub-Saharan African NITAG in a GAVI-eligible country.

2. Context

2.1. Immunization policies and programs

Côte d'Ivoire is a French-speaking West African country with a 2010 birth cohort of 649,477. Expanded Program on Immunization

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Table 1
Vaccination schedule in Côte d'Ivoire, 2009.

Ages	Vaccine[a]
At birth	BCG + OPV 0
6 weeks	DTP-HepB-Hib1 + OPV 1
10 weeks	DTP-HepB-Hib2 + OPV 2
14 weeks	DTP-HepB-Hib3 + OPV 3
9 months	Measles + yellow fever
18 months	4th dose DTP-HepB-Hib + OPV
Pregnant women	Tetanus toxoid 1st Dose: at the first contact 2nd Dose: one month after first dose 3rd Dose: 6 months after second dose 4th Dose: one year after the third dose 5th Dose: one year after the fourth dose

[a] BCG: Bacillus Calmette-Guérin (for tuberculosis); OPV: oral polio vaccine; DTP: diphtheria-tetanus-pertussis; HepB: hepatitis B; Hib: *Haemophilus influenzae* type b.

(EPI) services were launched in 1978 and are now delivered through approximately 1500 vaccination centers and involve all levels of the health system structure. Since March 2009, the immunization schedule has included nine vaccine preventable diseases: tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, measles, yellow fever, hepatitis B and *Haemophilus influenzae* type b (Table 1).

Between 2005 and 2007, administrative coverage rates reported by the MOH steadily improved while a decline in coverage (except for Bacillus Calmette-Guérin [BCG]) was reported for 2008 (Table 2). This can be explained partly by the internal political and military strife experienced by the country since 2000. With the decrease in vaccine coverage, some vaccine-preventable diseases have reoccurred, including 183 measles, 26 wild poliovirus, 22 yellow fever, and 6 neonatal tetanus cases in 2009. The drop in coverage rates which led to outbreaks in polio, yellow fever, measles and tetanus motivated the MOH to increase the number of supplementary immunization activities (SIAs). Despite the increase in SIAs which added to the financial and human cost of routine immunization in the country, no significant improvement was seen in coverage rates. In 2009, the minister of health asked the Inter-Agency Coordination Committee (ICC) to provide him with data on the impact of the SIAs on the coverage rates in the country. However, ICCs address primarily financial and operational issues; consequently, the ICC members created an ad hoc committee to work on the topic. This experience convinced the minister of the benefit of a standing technical consultative organ such as a NITAG to address scientific issues related to immunization policy, including the observed drop in immunization coverage.

2.2. National immunization expertise

Côte d'Ivoire has two medical schools. Additionally, the University of Cocody-Abidjan is one of the primary sponsors of the EPIVAC training course (www.epivac.org) and health professionals also have access to the International Course on Epidemiology and Applied Information Technology [7,8]. The EPIVAC and ICEAIT programs operate in Africa. EPIVAC provides master's level training in public immunization program management while ICEAIT provides training in epidemiology with a focus on disease surveillance and outbreak investigation and response. Both courses support NITAG creation by creating a critical mass of local professionals trained in vaccinology and developing a culture of evidenced-based decision making in immunization and disease surveillance. Finally, Côte d'Ivoire has a Pasteur Institute and research facilities. All these structures provide an ample supply of professionals with expertise in immunization issues.

Table 2
EPI vaccination coverage rates in Côte d'Ivoire between 2005 and 2008 (Côte d'Ivoire Ministry of Health, administrative sources).

Vaccine[a]	2005	2006	2007	2008
BCG	61%	77%	85%	91%
Penta 3	56%	77%	80%	74%
OPV3	56%	76%	80%	58%
Measles vaccine	50%	73%	78%	63%
Yellow Fever vaccine	52%	67%	78%	50%

[a] BCG: Bacillus Calmette-Guérin (for tuberculosis); OPV: oral polio vaccine.

3. Creation of the NITAG in Côte d'Ivoire: a step-by-step country-driven process

3.1. The methodology proposed by the SIVAC Initiative

The SIVAC approach for the creation of NITAGs is based on a country-driven, step-by-step process aimed at ensuring country ownership and sustainability. The specific criteria for country selection include geographic representativeness, routine immunization coverage rates, availability of expertise, and political stability. Information comes from literature reviews, a review of the WHO and UNICEF immunization data, and consultations with WHO regional offices [6]. Once a country is selected, the SIVAC Initiative visits the country to meet with national health authorities and partners to explain the advantages of establishing a NITAG and evaluate the willingness of the country to implement a NITAG. If national authorities express interest, SIVAC makes a second country visit to initiate the development of a concept paper. The first visit allows the country to better understand the concept of a NITAG and the SIVAC approach, while simultaneously allowing SIVAC staff to assess the motivation of the country to create a NITAG. The second visit allows for in-depth work on the creation of the NITAG, based on a concept paper approach. The concept paper, developed by the country, describes the current situation of immunization policies and programs, lists potential partners, describes the envisioned NITAG composition and terms of reference, and proposes priority topics to be put on the agenda. When finalized, the concept paper is then submitted to a large number of experts for discussion and consensus during a national workshop. Based on the final version of the concept paper endorsed by the national authorities, the MOH develops the legal documents related to the establishment of the NITAG. Once the NITAG is legally established in the country, the next steps are to appoint the committee members, identify specific agenda topics, organize formal committee meetings, develop recommendations, and disseminate recommendations to the MOH. After the establishment of the NITAG, the SIVAC Initiative provides support to the country mainly by reinforcing the scientific and technical capacities of the NITAG executive secretariat. Detailed support activities provided by SIVAC are tailored to the country, and are established annually in consultation with the NITAG itself.

3.2. The process in Côte d'Ivoire

SIVAC visited Côte d'Ivoire in January 2009 (Fig. 1) to present the initiative and the concept of establishing a NITAG to the national health authorities, influential national experts, and staff from partner institutions (WHO and UNICEF). The aim of this initial visit was to evaluate the feasibility of establishing a NITAG in the country by assessing the support of the national authorities and the availability of national expertise. SIVAC first met with the director and deputy director of the Cabinet of the MOH, who expressed interest in creating a NITAG. This was followed by a meeting with other senior MOH staff, and staff from the National Institute for Public Hygiene (INHP). Intensive discussion took place on the concept of NITAG independence, the relationships between the NITAG and the

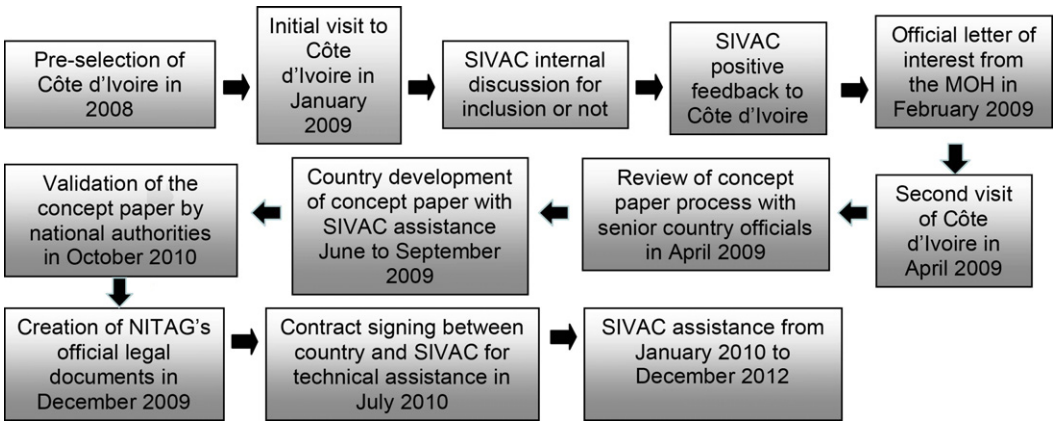

Fig. 1. The process in Côte d'Ivoire.

ICC, the NITAG and the Expanded Program on Immunization (EPI), and potential overlap in the terms of reference between the NITAG and other existing immunization committees in Côte d'Ivoire. This discussion helped clarify the role of a NITAG. Shortly after this visit, in February 2009 the SIVAC Initiative received an official letter of interest from the minister of health.

A second visit to Côte d'Ivoire was organized in April 2009. SIVAC held discussions with national authorities and potential local partners regarding the implementation of a NITAG in Côte d'Ivoire including the WHO, UNICEF, the INHP, the MOH, the Pasteur Institute, and representatives and professors from the main universities in the country. The minister of health designated the deputy director for immunization and vaccines at the INHP to be the focal point for coordinating the development of the future NITAG.

From June to October 2009, the MOH focal point and his team coordinated the development of a concept paper by a working group of national experts. The working group was composed of ten members from INHP, the MOH and the universities (Table 3). The MOH NITAG focal point organized a national expert consensus meeting attended by the members of the working group to finalize the concept paper before submission to the minister of health [9]. Once finalized, the MOH focal point presented the concept paper to the deputy director of the MOH Cabinet, to acquire a final endorsement from the minister of health. In November 2009, the MOH focal point met with the legal department of the MOH to draft the legal documents establishing the NITAG, including a list of members and the ministerial decree. This was followed by a presentation to the coordination committee of the MOH, which included the directors and the Cabinet of the MOH. The committee emphasized that the NITAG's role would be limited to recommendations and would therefore exclude any implementation role; stressed that the NITAG members rather than the NITAG as an institution would be independent; requested a more narrow and targeted role for the NITAG; and asked that some high level members be represented by deputies. Once these modifications were made, the documents were delivered to the MOH for finalization.

Table 3
Composition of the National Immunization Technical Advisory Group (NITAG) working group in Côte d'Ivoire.

Institution	Number of representatives	Title of representatives
Public Health National Institute	2	Head of Vaccinology department Epidemiological surveillance department
Expanded Program on Immunization Coordination Directorate	4	Coordination director Coordinating deputy director Health economist Medical doctor
Infectious Disease Department, Treichville Hospital	2	Professor Medical doctor
Public Health Department, Research and Training Unit, Abidjan Hospital	2	Assistant Deputy assistant

4. The NITAG of Côte d'Ivoire: the CNEIV-CI

4.1. Organization, responsibilities and functioning mode

In December 2009, the ministerial decree establishing the Comité National d'Experts Indépendants pour la Vaccination de Côte d'Ivoire *(CNEIV-CI)* or "National Committee of Independent Experts for Vaccination and Vaccines" CNEIV-CI within the MOH was signed followed in January 2010 by the designation of core members of the NITAG. The legally defined role of the CNEIV-CI is to advise the minister of health on all topics related to vaccines and immunizations. This includes, for example, vaccination policies and strategies, introduction of vaccines, prioritization of new vaccines, revision of vaccine schedules, and immunization coverage. The committee is composed of three types of members: independent national experts from a wide range of disciplines (core members), representatives from the MOH and other related ministries (ex-officio members), and representatives from partner institutions (liaison members such as WHO, UNICEF, AMP) (Table 4). Only the first group is allowed to vote.

As reflected by the NITAG name, the core members of the CNEIV-CI are independent as is the institution as a whole. This is also specified in the 2009 ministerial decree that describes the conflict of interest procedure for NITAG members, and which follows WHO recommendations on independence. The objective of CNEIV-CI's work is to advise the MOH through a consultative role.

The committee is chaired by a professor of public health, assisted by a vice chair, who is a professor of infectious diseases. The National Institute for Public Hygiene (Institut National d'Hygiène Publique, INHP) acts as the scientific and technical secretariat of the committee. The deputy director in charge of immunization and vaccines at the INHP is in charge of the secretariat work for the NITAG, and is assisted by a deputy executive secretary and a team.

The budget for the CNEIV-CI is limited and includes funding mainly for costs associated with meeting organization. During the

Table 4
Committee members of the Côte d'Ivoire National Immunization Technical Advisory Group.

Core member representation	Non core members (ex officio and liaison) representation
Public health and health policy (1)	Health General Directorate
Microbiology (Bacteriology/Virology) (1)	Public Hygiene National Institute
Pediatrics (2)	Pharmacy and Drugs Directorate
Infectious diseases (2)	Equipment Infrastructure and Maintenance Directorate
Pharmacy/logistics (2)	National Institute of Health Professionals Training
Applied vaccinology (1)	Public Health National Institute
Epidemiology and biostatistics (2)	Expanded Program on Immunization Coordination Directorate
Health economics (1)	National Program of school and university health
Sociology/anthropology (1)	Economics and Finance Ministry
Gynecology and obstetrics (1)	Domestic affairs and Emergency Preparedness Ministry
Workplace medicine (1)	Workplace Medicine Ministry
Paramedical associations (2)	Armed forces Health Ministry
	World Health Organization
	United Nations International Children's Emergency Fund
	Agence de Médecine Préventive

first year of activity, the SIVAC Initiative supported most of the costs followed by a gradual handover of budget items to the INHP which should be complete by the third year. The terms of SIVAC assistance are specified in an official document signed by the INHP and AMP.

In general, the establishment of the Côte d'Ivoire NITAG followed the guidelines established by WHO, such as having an official document authorizing the NITAG's existence and having written standard operating procedures (SOPs). In some cases, however, the process was adapted for the local context, such as the number of members and their rotation (Table 5).

4.2. First activities

In January 2010, the Côte d'Ivoire's minister of health presided over a ceremony to mark the launch of the CNEIV-CI. The first technical meeting occurred during March 2010 at the INHP offices. Discussion topics at this initial meeting included the attendance of ministries other than the MOH, the nomination of the new minister of health, the strengths and weaknesses of the current immunization services; training of the committee members and secretariat; new vaccines; immunization logistic issues; and target groups for vaccination. The committee members decided upon an agenda for 2010, including the functioning of the committee, determinants and barriers to immunization demand, new vaccine introduction, and vaccination outside of routine EPI activities. To better address the second ordinary session of the committee, the scientific and technical secretariat of the CNEIV-CI relied upon two working groups, which dealt with procedural rules for the functioning of the Committee recommendations to address the low EPI immunization coverage in Côte d'Ivoire.

Since March 2010, there have been in total four NITAG meetings. Three other meetings should have taken place but were cancelled

Table 5
Processes developed by the Côte d'Ivoire National Immunization Technical Advisory Group (NITAG).

Topic	Côte d'Ivoire National Immunization Technical Advisory Group process	Comment
Establishment	• Ministerial order establishing the committee • Ministerial decree nominating the President and members of the committee •Documents signed by minister of health	Conforms to World Health Organization recommendations
Size	• 17 core members • 12 ex officio members • 3 liaison members	World Health Organization-recommended number of core members: between 10 and 15 A greater number was selected to duplicate some areas of expertise and broaden committee expertise
Composition	• 11 specialities in the field of immunization and vaccines	Conforms to World Health Organization recommendations
Appointment	Using criteria developed by the National Immunization Technical Advisory Group working group, the General Director of Health proposed the National Immunization Technical Advisory Group creation to the minister of health	Conforms to World Health Organization recommendations
Rotation of core members	Renewable every four years indefinitely	World Health Organization recommends limitations on duration of committee membership
Standard operating procedures	The committee has standard operating procedures that define its operating rules	Conforms to World Health Organization recommendations
Agenda setting	• Agenda is defined by the core members of the committee and the secretariat • Extraordinary sessions for unexpected topics	Conforms to World Health Organization recommendations
Meeting frequency	Four ordinary sessions per year	Conforms to World Health Organization recommendations
Institution in charge of the scientific and technical secretariat	Public Hygiene National Institute vaccinology department	Conforms to World Health Organization recommandations Public Hygiene National Institute acts as the central coordinating structure for National Immunization Program activities
Financial operating resources	• Resources planned to be allocated in the general operating budget of the Public Hygiene National Institute • Financial support for transportation and food	Conforms to World Health Organization recommendations
Communication/reports	• Advice and recommendations directly transmitted to the minister of health • Other forms of transmission possible according to the committee	Conforms to World Health Organization recommendations

because of the political crisis. Topics discussed during those meetings included the SOPs of the NITAG, the drivers and obstacles for the functioning of the EPI program, and the burden of disease of vaccine preventable diseases after the political crisis. The most recent meeting of the NITAG was held in September 2011. During this meeting, the NITAG adopted a recommendation aimed at improving vaccination coverage and performances of the EPI in Côte d'Ivoire. One of the challenges is linked to the fact that the high frequency of polio eradication campaigns (six in 2011) drives away resources from routine immunization. The recommendation has been submitted to the MOH for approval.

Several months after NITAG implementation and after holding the first ordinary session, the president and general secretary of the CNEIV-CI attended a meeting of the French NITAG, the Technical Committee on Vaccinations (CTV), an advisory body located at the French High Council of Public Health. This visit was arranged so that the representatives of the Côte d'Ivoire Committee could better understand the functioning mode of a NITAG based on a long-standing model in a French-speaking country. This visit also provided an opportunity for the two NITAGs to initiate regular exchanges between their members.

5. Lessons learned

Côte d'Ivoire piloted many of the SIVAC Initiative processes; however, no systematic evaluation tool has yet been developed. Therefore the lessons learned presented here are primarily qualitative. The SIVAC Initiative, in collaboration with WHO, is in the process of defining a list of process, output and outcome indicators to support self-evaluation of NITAGs. This in turn will allow for the establishment of criteria to assess the drivers and limitations of success. The CNEIV-CI and the SIVAC Initiative are planning to evaluate the NITAG after three years of activity.

5.1. Drivers for success

The CNEIV-CI represents the first NITAG to have emerged in French-speaking sub-Saharan Africa. The two main drivers for success were a strong political will, mainly from the minister of health himself through his Cabinet, and the availability of sufficient national expertise. Other drivers included the step-by-step country-driven process and collaboration between the MOH and SIVAC. The strong political will was influenced by the presence of two champions who facilitated the process of creation of the NITAG: the deputy director of the Cabinet of the MOH and the deputy director for immunization and vaccines at INHP. They both had extensive professional experience in immunization, and attended the EPIVAC and Cocody University training programs. The deputy director of the Cabinet of the MOH had the role of facilitator and informant to the minister of health; the deputy director for immunization and vaccines, in his role of focal point for the MOH, acted as the facilitator for all the stakeholders involved.

The organization of the committee and recruitment of core members was facilitated by a long-standing commitment in Côte d'Ivoire toward higher education, which resulted in the availability of many experts in the field of immunization. Since the committee was based on a ministerial order, it had the authority it needed to recruit members and have a direct liaison to the implementing institution, namely the MOH.

The concept of a NITAG was new to all stakeholders at the beginning of the collaboration. To overcome this limitation, the SIVAC Initiative played an educational role by explaining the mandate of NITAGs, i.e. to act as a technical advisory committee to the MOH. This was contrasted with the activities of various existing committees (such as the ICC), and WHO recommendations, and supported by examples from other countries with functioning NITAGs. The meetings organized with all stakeholders served to remove barriers so that once the minister of health decided to create the committee, all stakeholders agreed as well.

5.2. Challenges

The socio-political crisis which occurred in 2002 had a negative impact on vaccination services. With the progressive return to a more stable socio-political situation in 2009, the national health authorities were confronted with multiple challenges in an environment characterized by scarce resources. Thus, the implementation of routine EPI follow-up activities and numerous supplementary vaccination activities by the minister of health mobilized most of the departments involved in the drafting of the NITAG concept paper during 2009.

Creation of the NITAG was facilitated by the relative political stability that existed during the creation period. During 2010, upheavals related to a disputed national election led CNEIV-CI to cancel its meetings and postpone its work for a year. However, the crisis did not affect the composition of the NITAG and since the new Government has been in place, the NITAG has been meeting and is functioning well. A NITAG meeting will take place in the first quarter of 2012 to plan for the 2012 agenda. Topics to be discussed include the development of a framework for managing AEFI, the assessment of immunization and surveillance activities in 2011, and the introduction of new vaccines.

Some NITAG members had extensive other priorities. This led to delays in the finalization of the concept paper and subsequent delays in NITAG creation. It is likely that this challenge will exist in all developing countries, given the great needs in the field of immunization, limited technical expertise, and the consequent great demands placed on in-country professionals.

Finally, several MOH members did not recognize the usefulness and relevance of a NITAG at first, arguing that many immunization advisory committees already existed. Moreover, some MOH members also initially objected to NITAG committee member independence, which was eventually clarified to mean member independence, with the committee itself serving the MOH.

6. The future

For many years, decision making in Côte d'Ivoire was mainly influenced by regional and international rather than national recommendations. A significant milestone was achieved in December 2009 when Côte d'Ivoire's MOH created the CNEIV-CI, the first NITAG in a GAVI-eligible African country. The example of Côte d'Ivoire can set the stage for other countries in the region to establish their own NITAG.

Looking forward, some risks can be foreseen. Although the recent political crisis temporarily suspended the work of the CNEIV-CI, the NITAG resumed its meetings. The challenge is now to ensure that the committee meets regularly a year and that all members attend, as it is likely that many pressing health priorities will exist. In this context, it will be important that members advocate the NITAG to the members of government. This is particularly pertinent given that the implementation of NITAG recommendations requires endorsement by the minister of health. Finally, NITAG functioning requires substantial preparatory work by the NITAG executive secretariat; however, it remains in doubt whether Côte d'Ivoire will be able to provide staff with sufficient availability and technical expertise to serve on the secretariat. For example, in the United States, the US Centers for Disease Control and Prevention serves this function for the American Committee on Immunization Practices; however, no equivalent structure exists in Côte d'Ivoire.

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