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RESEARCH ARTICLE

DOES LEADERSHIP AND MANAGEMENT TRAINING PROGRAM IMPROVE MATERNAL AND CHILD HEALTH OUTCOMES: A BEFORE AND AFTER STUDY IN THE HEALTH REGION OF AGNÉBY-TIASSA-MÉ IN CÔTE D'IVOIRE

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ABSTRACT

Objective: the hypothesis tested in the study was that strengthening health system, especially leadership and management skills of health teams, will result in an improvement of maternal and child health outcomes from 2015 to 2017. Methods: this is a before and after design study without control group in the health region of Agnėby-Tiassa-Mė. The evolution of the following indicators was assessed to evaluate the impact of the LDP program: the four and more antenatal care visit, the maternal mortality rate, the percentage of births attended by skilled health staff, sulfadoxine pyrimethamine two doses coverage, sulfadoxine pyrimethamine three doses coverage, Penta 3 coverage. Data were collected from district monthly reports, birth registers, and quarterly reports from the health region; then analyzed using Excel. Results: in general all the indicators have improved in 2017 except for the four and more antenatal care visit and Penta 3 coverage which knew a slight decrease in 2017 but still higher than 2015. Conclusion: leadership and management training is a key element of ingredient for in health system strengthening and outcomes improving in limited resources countries.

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INTRODUCTION

Weaknesses in health systems are a major barrier to achieve the Sustainable Development Goals in addition to other health goals. Health systems strengthening is a critical element in improving health services and outcomes, so that in many developing countries a particular attention is placed in Leadership and Management approach at the health district level (World Health Organization, 2010; Mutale *et al.*, 2017; Seims, 2012). Indeed, according to the World Health Organization, a health system is consists of all organizations, institutions, people, resources and actions whose primary intent is to improve health. In addition, for a well-functioning health system, WHO has defined six building blocks: service delivery, health workforce, health information systems, access to essential medicines, financing, and leadership/governance (World Health Organization, 2010). Improving leadership and management of the health system is essential to ensure effective use of national and international resources as well as tangible results.

Moreover, training in leadership has been demonstrated to result at health-care setting in changes in service delivery or health outcomes (Mutale, 2017; Seims, 2012; Joseph *et al.*, 2016; Saleh, 2004; Salas, 2008). In developing countries, there is a lack of competences in management and leadership among the health managers and leaders because most of time they are trained health professionals and they have rarely participated in any training or experience of managerial positions (Daire *et al.*, 2014; Gilson, 2010). Health professionals are often promoted only on the basis of their clinical expertise. They may not have the necessary managerial competencies for their new responsibilities and often learn on the job or through training (Daire *et al.*, 2014). In Côte d'Ivoire which is a Sub-Saharan Africa, leadership and management is a critical concern for the health system. Indeed, the Ivoirian Ministry of Health and Public Hygiene in collaboration with Management Sciences for Health as in many others African countries, has developed a Leadership and Management Capacity Building Program. This project aims to ensure the success and sustainability of the interventions undertaken at all levels of the health system pyramid in general, the health regional and departmental directorates in particular, then to train committed

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and motivated leaders with strong skills in governance, leadership and management in order to improve health indicators. The purpose of this paper is to measure the extent to which the training program had contributed to improve the maternal and child health outcomes in the health region of Agnéby-Tiassa –Mé. The hypothesis tested in the study was that strengthening health system, especially leadership and management skills of health teams, will result in increased maternal and child health outcomes.

MATERIELS AND METHODS

Study setting: The study was conducted in the health region of Agnéby-Tiassa-Mé located in the South-East of Côte d'Ivoire, around 85 km from Abidjan, the economic capital. The health region is composed of 2 administrative regions (Agnéby-Tiassa and Mé) and covers 8 departments divided into 6 health districts: Agboville, Tiassalé, Sikensi, Adzopé, Akoupé and Alépé. According to estimates of the National Institute of Statistics of Côte d'Ivoire, the total population in 2016 of the health region, was 1,179,575 inhabitants with a density of 67 inhabitants per km². Moreover, 77% of the population lived within 5 km of a first contact health facility. The population living between 5 and 15 km from a health center accounted for 17%, and 6% had to travel more than 15 km to access a health facility. This Health region has one of the highest maternal mortality ratios of the country according to the Maternal Death Surveillance Report 2015.

The LDP intervention: The LDP intervention aims to empower managers and health professionals to improve the quality and accessibility of health services through supporting health region and district, as well as health facility teams. During the LDP intervention, health teams are trained on how to lead projects, to address service delivery challenges, to increase their skills in mobilizing local resources, to monitor results and improve the work groups and workplaces environment.

The LDP intervention composed of two phases used a team-based approach to develop leadership and management skills among health workers. The first phase was conducted from March to December 2016. This first phase of training was addressed to health region team, health districts team and regional hospital team. The second phase involved general hospitals team and urban healthcare centers team and district stakeholders. The second phase was conducted from March to December 2017. Each phase of training was composed of workshops, presentations and meetings. As the regional team received the theoretical training, they were supervised by the team of national trainers to ensure the return to the District Executive Teams. Then the application of the acquired knowledge was done in the daily practice of the activities. A total of 76 Health workers including managers participated in the training. The LDP used the Leading and Managing Practices Framework as a tool to provide a simple way to understand the leadership and management activities required to enable others to face challenges and achieve results (Figure1)

Study design: This is a before and after design study without control group in the health region of Agnéby-Tiassa-Mé. An analysis of the situation was carried from January to December 2015 before the beginning of the first phase of the intervention

in March 2016 by the measure of maternal and child health outcomes. The same indicators were measured after the first phase and then the second phase of the intervention in November 2017 in order to highlight changes.

Target population: The target population consisted of all the live births, the children aged 0 to 11 months, the pregnant women who came in the facility from 2015 to 2017.

Outcomes measures: The indicators chosen to assess the impact of the intervention were: the four and more antenatal care visit (ANC4+), maternal mortality rate, the percentage of births attended by skilled health staff, sulfadoxine pyriméthamine two doses coverage (SP2 coverage), sulfadoxine pyriméthamine three doses coverage (SP3 coverage), Penta 3 (DTP-Hib-hepatitis B) coverage.

Data collection and analysis: Data collection was conducted before the intervention, after the first phase and then after the second phase of the intervention. Data was collected from district monthly reports, birth registers, and quarterly reports from the health region. Data were analyzed using SPSS 18, the percent variation was calculated for the maternal mortality rate and the variation of proportions for the other indicators was assessed through the difference between proportions.

RESULTS

Characteristic of Agnéby-Tiassa-Mé health region: As displayed in table 1, Agnéby-Tiassa-Mé health region is divided into 6 health districts and has one regional teaching hospital, 7 general hospital and 86 health facilities with the majority of them located in rural area. Concerning the health workforce, the health region has 6 Obstetrician/gynecologists, 287 midwives and 473 nurses.

Evolution of maternal and child health outcomes after the first and the second phase of LDP intervention (figure 2,3): As displays in Figure 2, ANC4+ coverage increased by 7 percent point from 2015 to 2017 with an increase (14 percent point) from 2015 to 2016, and a decrease (7 percent point) from 2016 to 2017. As regards the percentage of births attended by skilled health workers, increased by 30 percent point from 2015 to 2017. SP2 coverage increased by 18 percent point from 2015 to 2017. Regarding SP3 coverage, it increased by 25 percent point from 2015 to 2017. Penta 3 coverage increased by increased by 4 percent point from 2015 to 2017, with an increase (10 percent point) from 2015 to 2016 and a decrease (6 percent point) from 2016 to 2017. Additionally as illustrated by figure 3, the number of maternal death per 100, 000 live decreased by 15.9% from 2015 to 2016, 36.5% from 2016 to 2017 and 46.5% from 2015 to 2017.

DISCUSSION

Increasing of maternal and child health outcomes: health leadership and management is an essential component of health systems strengthening given its key role in the provision of safe and effective healthcare and in ensuring health worker motivation and retention (Bradley, 2015; Dorros, 2007; Atun, 2012). This study showed that training of health workers in Leadership and Management results in general, in increasing maternal and child health outcomes in the health region of Agnéby-Tiassa-Mé.

Leading & Managing Framework

Practices that enable work groups and organizations to face challenges and achieve results

Leading

SCANNING



- Identify client and stakeholder needs and priorities.
- Recognize trends, opportunities, and risks that affect the organization.
- Look for best practices.
- Identify staff capacities and constraints.
- Know yourself, your staff, and your organization — values, strengths, and weaknesses.

ORGANIZATIONAL OUTCOME: Managers have up-to-date, valid knowledge of their clients, the organization, and its context; they know how their behavior affects others.

FOCUSING



- Articulate the organization's mission and strategy.
- Identify critical challenges.
- Link goals with the overall organizational strategy.
- Determine key priorities for action.
- Create a common picture of desired results.

ORGANIZATIONAL OUTCOME: Organization's work is directed by well-defined mission, strategy, and priorities.

ALIGNING / MOBILIZING



- Ensure congruence of values, mission, strategy, structure, systems, and daily actions.
- Facilitate teamwork.
- Unite key stakeholders around an inspiring vision.
- Link goals with rewards and recognition.
- Enlist stakeholders to commit resources.

ORGANIZATIONAL OUTCOME: Internal and external stakeholders understand and support the organization's goals and have mobilized resources to reach these goals.

INSPIRING



- Match deeds to words.
- Demonstrate honesty in interactions.
- Show trust and confidence in staff, acknowledge the contributions of others.
- Provide staff with challenges, feedback and support.
- Be a model of creativity, innovation, and learning.

ORGANIZATIONAL OUTCOME: Organization displays a climate of continuous learning and staff show commitment, even when setbacks occur.

Managing

PLANNING



- Set short-term organizational goals and performance objectives.
- Develop multi-year and annual plans.
- Allocate adequate resources (money, people, and materials).
- Anticipate and reduce risks.

ORGANIZATIONAL OUTCOME: Organization has defined results, assigned resources, and an operational plan.

ORGANIZING



- Ensure a structure that provides accountability and delineates authority.
- Ensure that systems for human resource management, finance, logistics, quality assurance, operations, information, and marketing effectively support the plan.
- Strengthen work processes to implement the plan.
- Align staff capacities with planned activities.

ORGANIZATIONAL OUTCOME: Organization has functional structures, systems, and processes for efficient operations; staff are organized and aware of job responsibilities and expectations.

IMPLEMENTING



- Integrate systems and coordinate work flow.
- Balance competing demands.
- Routinely use data for decision making.
- Coordinate activities with other programs and sectors.
- Adjust plans and resources as circumstances change.

ORGANIZATIONAL OUTCOME: Activities are carried out efficiently, effectively, and responsively.

MONITORING & EVALUATING



- Monitor and reflect on progress against plans.
- Provide feedback.
- Identify needed changes.
- Improve work processes, procedures, and tools.

ORGANIZATIONAL OUTCOME: Organization continuously updates information about the status of achievements and results, and applies ongoing learning and knowledge.



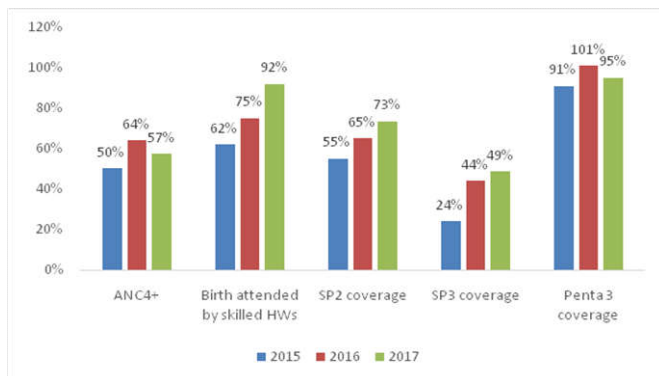
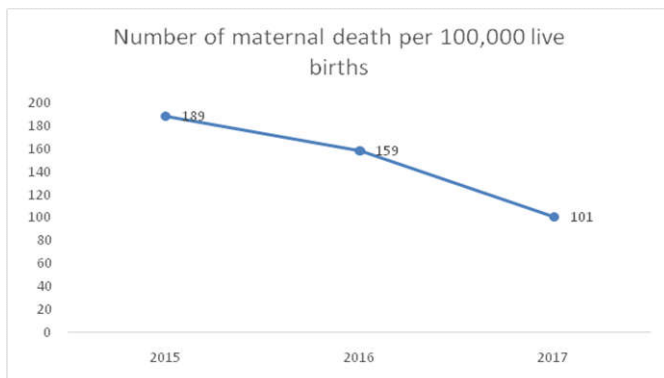
Figure 1. Leading and Managing Framework. Practices that enable work groups to face challenges and achieve results

These results can be explained by a better level of realization of the coordination activities at the regional and district level. Besides, in our study, concerning the decrease of maternal death, it is important to mention that joint actions were carried out at all levels in the region. The actions that could have contributed to the achievement of this result included: the establishment of departmental maternal death committees in all districts of the region, the implementation of maternal death review committees in reference hospitals, the organization of maternal death reviews and response, the coaching of midwives of urban health centers referring by the team of the Regional Hospital, organization of monthly meetings with midwives and gynecologists, the networking of midwives for a better communication and sharing of experience.

Also the establishment of a "mentoring" system for the midwifery coached in the structures by other more experienced midwives as well as the organization of sensitization sessions with communities. A before and after design study conducted in Egypt showed that after participating in the LDP program in 2003, 10 teams from three districts increased the number of new family planning visits by 36% 68% and 20% (Topçuoğlu, 2003). In Kenya, a non-randomized design comparing measures of key service delivery indicators by health teams receiving LDP intervention against measures in comparison group not receiving the intervention, showed an increase in health service coverage at the health district level and an increase of client visits at the facility level in the intervention group (Seims, 2012).

Table 1. Characteristics of the Agnéby Tiassa Mé health region

	Frequencies
Health districts	06
General Hospital	7
Regional Teaching hospital	1
Urban health facilities	39
Rural health facilities	47
General physicians	109
Pharmacists	30
Obstetrician /gynecologist	6
Pediatricians	0
midwives	287
Nurses	473

**Figure 2. Evolution of maternal and child indicators from 2015 to 2017****Figure 3. Evolution of maternal death rate from 2015 to 2017**

Study limitations: the before-and-after design is most useful in demonstrating the immediate impacts of short term programs. However, over the course of a longer period of time, more circumstances can arise that may obscure the effects of the intervention. Moreover, it would have been interesting to have a comparison group. However, in our case it would have been difficult given the fact that LDP intervention has been scaled up.

Conclusion and suggestions

The LDP intervention enabled the reinforcement of the actors skills at district and regional levels, which allowed positive changes in their daily management of health activities. The performance gained significantly improved maternal-child health indicators in Agnéby-Tiassa-Mé health region. To maintain performance or even improve it, it is appropriate to develop a mechanism for sustaining achievements once the project ends or even develop strategies to further improve performance. For a better follow up of the evolution of indicators, it is fundamental to supervise activities every two months for the health districts and each quarter for the health region, to organize weekly and monthly meetings with the

Regional Health Team and the District Executive Team. Moreover, there is a need to the establish of semi-annual evaluation of the Hospital Management Committees: to reinforce governance through a monitoring and evaluation plan, to define the region's health priorities and involve all the stakeholders, to appropriate leadership and management practices and LDP + tools for the extension of the process in the other facilities, to define with districts the monthly objectives of some key indicators to reach and work towards their achievement, to communicate on the proven interventions through publications and sharing experiences of good practices and success stories, to establish a reward system for the best district in the region each year and to maintain achievements and further improve performance.

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