

PD-ABQ-724
98724



14 David Mews, Porter Street, London, W1M 1HW
Telephone [44] 171 487 2505
Telefax [44] 171 487 4042
e-mail hq@merlin.org.uk

Congo Brazzaville

Final Report

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Contacts

Peter Paul de Groot - Desk Officer - Africa

Richard Allan - Medical Adviser

MERLIN (Medical Emergency Relief International)

14 David Mews

Porter Street

London

W1M 1HW

Tel 0171 487 2505

Fax 0171 487 4042

Programme Title

Emergency measles vaccination, health survey and risk awareness campaign for the population of Greater Brazzaville, Congo

Project Location

Congo

Project Duration

23/12/97 - 23/03/98

Project Cost

\$208,093

2.0 Executive Summary

After five months of civil war in Brazzaville, Congo, the capital city was left with large areas totally destroyed and widespread damage to water and sanitation systems. Most of the normal infrastructure, including the majority of the cities health facilities were looted and many of the buildings were badly damaged leaving the cities health system totally crippled. Over 800,000 people fled Brazzaville during the war seeking refuge in surrounding forest. When the fighting ended in October 1997 this weakened population began to return to their damaged homes. With the real threat of measles outbreak amongst this highly vulnerable population MERLIN, working closely with the local health authorities, with support from UNICEF, OFDA and DFID carried out a mass vaccination campaign against measles, with a supportive programme of health education and nutritional screening for mothers and children, through a net work of 32 primary health centres in Brazzaville. 209,148 children aged 9 months up to and including 12 years were vaccinated against measles and 32 health centres were assisted in re-establishing normal primary health care services, as a result of the programme.

The emergency programme was based on the following goal and objectives

Goal

To reduce morbidity and mortality due to preventable health risks among children in Greater Brazzaville

Objective 1

To avoid the threat of measles epidemic by ensuring at least 80% immunisation coverage among the defined target population in Greater Brazzaville. To enhance immune protection against measles, and other diseases, with Vitamin A supplements and deworming treatment

Objective 2

To enhance relief initiatives by identifying, and quantifying, vulnerable children exposed to health and nutritional risks (this objective was supported by DFID)

Objective 3

To improve public awareness of war related health threats and appropriate avoidance strategies

2 0 Background

The Congo has been undergoing severe political and economic turmoil since 1991 leading to a continuous deterioration of living conditions. On 5 June 1997 five months of civil war began which ravaged Brazzaville. By the final phase of the war in October 1997, only approximately 100,000 of pre-war population of 900,000 of the city still remained. Since the end of hostilities in October, as anticipated large numbers have returned to the city. By February 1998 it has been estimated that 90% of the population has returned. Since the end of the war signs of progress are apparent. However doubt persisted on how well the city will be able to meet basic living conditions for its population.

Pre-war data suggests a declining health and nutritional situation in Brazzaville, largely attributed to the continued economic and political turmoil since the early nineties leading to a continuous deterioration in living conditions, health facilities and food security. The population of Brazzaville is largely administrative/civil servant and is traditionally heavily dependent on food imports. Before the war prices of basic food stuffs had been increasing and the nutritional status of the under five's population deteriorating (moderate malnutrition, 2.8%, 1988, 4.3%, 1991). The five month civil war in Brazzaville greatly disrupted health services in Brazzaville with extensive damage to health facilities in the city centre and widespread looting of drugs and equipment. Immediately post war the exact impact of the conflict on the health and nutritional condition of the population was unclear.

Since 1990 the vaccination coverage for all antigens has been in continuous decline all over the country. In 1995 the coverage for measles was estimated at 39% (WHO). Since the conflict there has been general break-down of EPI activities, coverage can be expected to be lower still. As a consequence of the war a deterioration in the health and nutrition status of the population was anticipated, compounded by poor and crowded living conditions of many returnees, lack of hygiene, and concerns about the capacity of the population to regain a basic standard of living. This scenario increases the risk of high mortality in case of epidemic.

In November 1997 MERLIN conducted an assessment of the situation in Brazzaville. Due to the significant risk of a measles epidemic identified and an inability of local services to respond in the necessary time frame, an emergency measles vaccination campaign was scheduled and conducted between 16 January - 28 February 1998 in partnership with UNICEF and the Ministry of Health. By operating through the local EPI system it was planned that the campaign would also serve to re-activate the disrupted EPI services of Brazzaville. In addition a health and nutrition survey of the 6-59m vaccination population was scheduled to run concurrently with the vaccination campaign in order to identify and quantify vulnerable population groups and ensure effective targeting of humanitarian assistance activities.

3.0 Principle benefits and achievements of the project

- Between 12 January and 28 February 1998, a total of 209,148 children aged 9 months up to and including 12 years were vaccinated against measles. The measles vaccination coverage was 93% of an estimated target population of 225,000. In addition all children received single dose Vitamin A and de-worming medication.
- Between 4 February and 13 February 1998 a health and nutrition survey of the attendant population was made. The survey supported the findings of other organisations of a non emergency nutritional situation in Brazzaville. The findings highlighted the vulnerable under five returnee population of Brazzaville. In addition the survey confirmed that not all children had returned to Brazzaville. Information regarding child morbidity, mortality and nutritional status collected has helped target humanitarian activities within Brazzaville.
- Between 9 January and 28 February 1998 a health-risk awareness campaign was conducted at each of the MERLIN vaccination centres. Through animation, key health messages were presented covering diarrhoeal illness, skin diseases, nutrition and injury avoidance due to unexploded devices and damaged buildings.
- Through the activities of the MERLIN measles vaccination campaign in cooperation with UNICEF and MoH the EPI cold chain has been re-established and stocked. The end of the campaign was marked by the re-activation of EPI services in Brazzaville by the MoH supported by UNICEF.
- MERLIN has worked in close partnership with UNICEF and MoH and has been actively involved in all relevant MoH/NGO/IO bodies.

4.0 Progress rating against original logical framework

OUTCOMES	INDICATORS	RATING
1 1 In the shortest time-span possible to achieve 80% of children between the age of 9 months and 12 years in CB vaccinated against measles, received vit A supplement and de-worming treatment	1 1 Measles vaccination campaign completed 6 Jan - 28 Feb 1998 93% of target population vaccinated All received single dose vit A and mebendazole	1
1 2 Improved capacity of the local health services to re-start and continue EPI activities	1 2 Cold chain equipment in place, stocked and available to EPI service 1 3 At end of campaign EPI service reactivated by MoH/UNICEF Health staff involved in campaign employed by MoH in EPI service	1 2
2 1 Basic nutritional and health status of children surveyed by geographical and socio-economic criteria	2 1 Nutrition and Health survey conducted 4 - 13 February 1998 Analysis completed by end of campaign	1
2 2 Improve effectiveness of international assistance by better targeting	2 2 Final report prepared and distributed on 5 March 1998 2 3 Report findings discussed with UNICEF, MoH and with NGO's/IO working in Brazzaville	1 1
3 1 Improve public awareness of war-related health risks	3 1 Health education through animation conducted while children waiting to be vaccinated	2
3 2 Mothers and children apply avoidance strategies against war-related health risks	3 2 Expat supervision of animation	2
ACTIVITIES		
1 1 Restore cold chain (temporary or permanent, as expedient)	1 1 Cold chain restored	1
1 2 Information campaign	1 2 Animation and displays at 31 vaccination centres	1
1 3 Organise vaccination days	1 3 A total of 32 vaccination sites organised covering north, central and south Brazzaville Two supervisors per centre overseen by two medical expats and local EPI director	1
1 4 Data collection of coverage data	1 4 Daily data collection and review	2
1 5 Bi-level (MUAC/WfH) nutritional survey	1 5 Due to review of pre war data available other NGO nutrition survey WfH survey conducted only	2
1 6 Survey child health indicators in conjunction with vaccination campaign	1 6 Information on under five morbidity and mortality collected during survey	2

Key to ratings 1= fully achieved, 2= mostly achieved, 3= partially achieved, 4= minimally achieved, 5= not achieved

5.0 Results

5.1 OBJECTIVE 1

Between 9 January and 28 February 1998 MERLIN successfully vaccinated 209,148 children against measles, achieving a coverage of 93% of an estimated 225,000 target population. All children received supplementary vitamin A and de-worming treatment. At the time of assessment in November 1997, the target population was estimated at 250,000. During the campaign this was revised to 225,000 based on local data becoming available and the working experience of other organisations.

Since the end of the war, the majority of the health staff previously employed by the MoH in the EPI service of Brazzaville have returned and took part in the measles vaccination campaign. Through the operation of the campaign the cold chain has been re-established and stocked. The end of the campaign was marked by the reactivation of the EPI service in Brazzaville by the MoH supported by UNICEF.

Since the end of the conflict, little information has been available on the profile and number of the population returned. By documenting the profile of children presenting for vaccination a more accurate picture of the proportion of children present in Brazzaville and per each district has been generated. This has provided valuable information to those organisations who continue to work in Brazzaville.

5.2 OBJECTIVE 2

Between 4 February and 13 February 1998 a health and nutrition survey was conducted of a proportion (10%) of those children attending for vaccination. The report of the survey is included in appendix I. The findings showed a non-emergency nutrition situation in Brazzaville but highlighted an extremely vulnerable population, particularly those children returning from rural villages to which families had fled during the conflict. In addition the survey identified an increased under five mortality since the end of the war, significant under five's morbidity, and a proportion of the under five population (7%) who had not yet returned to the city. This information has helped to substantiate the work of those organisations involved in nutrition and health in Brazzaville and to more effectively target services. In addition it has emphasised the vulnerability of the population of Brazzaville despite outward a semblance of returning normality.

The initial MERLIN programme proposal scheduled to survey 10% of the total vaccination population, conducting the survey through the entire campaign. A weight-for-height and MUAC anthropometric assessment of the under five population was planned and a socio-economic assessment of the households represented. The nature and scope of the health and nutrition survey was revised for the following reasons:

1 The Congo has a long history of active nutrition research and surveillance based in Brazzaville and led by the research unit ORSTOM in conjunction with the nutrition unit of the Ministry of Health and UNICEF. Following the 1992 Geneva meeting on nutrition, a National Plan of Action for Nutrition in the Congo was published in June 1996. This plan summarised the nutrition situation to date in the Congo, identified key areas and devised a number of action plans based on strategies to improve food security, continued nutritional surveillance and community participation. Consequently there was in-depth information available on the nutritional status of the population of the Congo and Brazzaville immediately before the war.

2 The rationale for the campaign survey at the time of MERLIN's assessment in November 1997 was lack of information regarding the health and nutritional status of the returning population. In January 1998 Medecins Sans Frontieres (MSF) conducted a nutrition and food security survey of Brazzaville. In order to prevent duplication of work, the UNICEF/MERLIN survey was delayed until the results of this survey were made available in February. In addition, the nutrition research unit of ORSTOM, based in Brazzaville, became immediately active in food security surveillance following the war.

Subsequent to these results the scheduled survey was adapted to collect information identified by the MSF survey as currently lacking and to avoid data replication.

A Since the nutritional characteristics of the urban population of Brazzaville had been well documented before the recent war, a bi-level survey (MUAC/WfH) to facilitate comparison of MUAC with WfH in an urban African setting was not indicated.

B The socio-economic profile of the population of Brazzaville in relation to nutrition and health was well documented before the war, the most recent assessment made in 1996 by the research unit ORSTOM. In January 1998 MSF included a socio-economic and food security assessment in the nutrition survey of the town. As a result no such information was collected during the MERLIN survey.

C Since the MERLIN survey was delayed, it was not conducted for the entire campaign as originally planned but during weeks 5 and 6 only. This has the disadvantage that the results are not statistically representative of the total vaccination population. However the delay allowed more appropriate and locally useful information to be collected which was deemed the priority.

5.3 OBJECTIVE 3

During the vaccination campaign a health-risk awareness campaign was conducted at each of the MERLIN vaccination centres. Through animation, key health messages were presented covering diarrhoeal illness, skin diseases, nutrition and injury avoidance due to unexploded devices and damaged buildings.

A quantification of the effect of the health awareness campaign has not been made. With the disruption in health services due to the war, facilities have begun to re-establish but the level of data collection on reason for attendance is variable. As a result, comprehensive collection of data on children presenting for war related injury was not possible. Children who attend a particular vaccination centre do not necessarily live in that district. This was especially true of those centres based in the centre of Brazzaville. Household visits to assess the incidence of war related injury would not necessarily reflect the effectiveness of the local centre's health awareness campaign. A purely subjective assessment of the success of the health awareness campaign has been made. Considering the extensive coverage of the vaccination campaign, a large proportion of the population of Brazzaville were targeted with health messages during a period when the devastation of the war is still acutely felt. The importance of the measles vaccination campaign has been well appreciated. It may be assumed that the messages relayed during vaccination at a sensitive time were equally well received.

5.4 ACTIVITIES

1. As a result of the MERLIN measles vaccination campaign, the cold chain system has been restored in Brazzaville. A stock of materials and vaccines remaining at the end of campaign has been handed over to the EPI service. The end of the campaign was marked by re-activation of the EPI service by the Ministry of Health supported by UNICEF. The experience of MERLIN in conducting the campaign and recommendations to improve the effectiveness of the EPI service have been made to UNICEF and the MoH.
2. The MERLIN measles vaccination campaign was widely publicised through local television, radio, and newspapers and banners widely displayed throughout the city. The campaign was opened by the Minister of Health and recorded for television and radio. During the campaign, MERLIN staff were interviewed for all media on the progress of the campaign. The campaign was closed at an official event led by the MoH which also marked the announcement of the reactivation of the EPI service in Brazzaville. The success of the measles vaccination campaign may be largely attributed to the high profile which the campaign achieved in Brazzaville.

At each of the 32 vaccination centres locally prepared displays and animation material on health awareness issues were highly visible and used in active health education. The publicity of the campaign generated a large target population for health-risk awareness education.

- 3 A total of 32 vaccination centres (mainly health facilities) were located throughout Brazzaville, grouped into north, central and south sectors of the city. Each sector was supervised by one medical expat. A total of 320 local health staff were employed in the campaign by the MoH, most of whom had worked in the MoH EPI service before the war. Daily per diems were paid by MERLIN to all health staff. Each centre was supervised by one local supervisor who liaised daily with the appropriate expat. Each supervisor was responsible for two vaccination centres. Daily transport to and from the centres was provided by MERLIN for all supervisors.
- 4 Data on vaccination coverage was collected, submitted and critically reviewed by MERLIN on a daily basis. Daily and cumulative coverage was submitted to UNICEF and relayed to the vaccination teams each day. Progress reports were given at a fortnightly inter-agency medical meeting.
- 5 Since the nutritional characteristics of the urban population of Brazzaville had been well documented before the recent war, a bi-level survey (MUAC/WfH) to facilitate comparison of MUAC with WfH in an urban African setting was not indicated.
- 6 A survey of child health indicators was conducted during weeks five and six of the vaccination campaign (appendix 1). The necessary delay in commencing the health and nutrition survey meant that information on a sub-group but not the total vaccination population was collected.

6 0 Situation re-assessment, constraints and lessons learned

6 1 TOTAL POPULATION

The original target population of children aged 9m - 12 years was estimated at 250,000 based on an estimated total urban population of 900,000 in Brazzaville. No accurate population census data was available. In January the estimated target population was revised to 225,000 on review with UNICEF and the MoH. The calculated measles vaccination coverage is therefore based on a revised target population of 225,000 and not on the original 250,000.

In order to further increase the coverage of the campaign, the schools of the city were also targeted. Mobile teams were deployed on three Saturdays during the vaccination campaign to pre-arranged schools where mass vaccination of children during school hours was conducted. In addition all children present in the paediatric ward of the two city hospitals were vaccinated against measles.

6.2 HEALTH AND NUTRITION SURVEY

A health and nutrition survey was scheduled to run concurrently with the vaccination campaign. Collection of socio-economic, geographical and anthropometric data on 10% of the target population was scheduled. In a post-conflict situation as prevailed in Brazzaville, ongoing re-assessment is essential in the context of the prevailing security, health situation and other NGO and MoH activities in the area. Revision of the survey was deemed appropriate and as a result of the delay which was incurred, it was not possible to conduct a survey from the beginning to the end of the campaign. The result was a survey conducted on a sub-group of children presented for vaccination during weeks five and six of the campaign. Whilst not statistically representative of the vaccination population as a whole, the findings have helped to identify a vulnerable sector of the population and provided valuable local information which has aided in more effective targeting of health and nutrition services in the area.

6.3 EPI SERVICE

The measles vaccination campaign was conducted by teams of local staff the majority of whom were employed by the Ministry of Health in the EPI service before the war. All staff received training in vaccination, cold chain management and survey methodology at the beginning of the campaign. At the end of the campaign the working experiences of the programme were discussed with the Director of EPI and with UNICEF and recommendations were made on further target areas for organisation and training which would benefit the EPI service.

7.0 Conclusion

MERLIN has successfully achieved all of the objectives set out in the original emergency proposal for Greater Brazzaville. MERLIN's approach of working in partnership with existing health structures, health authorities and national staff required intensive investment in the planning and set-up stages of this emergency but it undoubtedly increased the final impact of the emergency response. In addition this approach has also provided two major longer term benefits to the population. Firstly, MERLIN, with material support from UNICEF, has re-established a full cold chain throughout Greater Brazzaville with a central vaccine storage facility. The cold chain was handed over to the MoH at the end of the programme for reactivation of full EPI services with ongoing support from UNICEF.

Secondly, MERLIN have assisted the MoH in re-establishing vital primary health care services to the population through a net work of 32 health centres and staff that MERLIN financially supported, equipped, retrained and worked through during the implementation of this programme

MERLIN is very pleased with the progress made through this programme, the impact of the activities and the excellent level of co-operation between MERLIN, UNICEF, MoH and local health staff that helped to make this emergency intervention so successful

APPENDIX 1

**UNICEF/MERLIN EMERGENCY MEASLES
VACCINATION CAMPAIGN, BRAZZAVILLE, CONGO**

12 JANUARY - 28 FEBRUARY 1998

NUTRITION AND HEALTH SURVEY REPORT

**Marie McGrath
Clinical Nutritionist
MERLIN Brazzaville**

28 February 1998

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VI CONCLUSION

I GLOSSARY

MERLIN	Medical Emergency Relief International
UNICEF	United Nations International Children Emergency Fund
MOH	Ministry of Health
WHO	World Health Organisation
MSF	Medecins Sans Frontieres
NGO	Non Governmental Organisation
WHZ	Weight for height Z score
HAZ	Height for age Z score
6-59m	Children greater than 6 months up to and including 59 months
5-12y	Children greater than 5 years up to and including 12 years

II SUMMARY

Following five months of civil war in Brazzaville, an emergency measles vaccination campaign was conducted between 12 January - 28 February 1998 by MERLIN in cooperation with UNICEF and the Ministry of Health. In addition a health and nutrition survey was conducted during weeks five and six of the vaccination campaign.

A total of 2599 children were surveyed during the campaign, 84% of whom were aged 6-59 months. The prevalence of severe acute malnutrition was 9.3% (n=183) and of severe acute malnutrition was 1.3% (n=25) in the 6-59 month age group. The prevalence of oedematous malnutrition (kwashiorkor) was 1.4% (n=29).

Of the total population surveyed, 7.9% (n=205) of the households represented had children under five years who have remained absent from Brazzaville since the end of the war in October 1997. A total of 3.6% (n=94) of the carers questioned in the survey reported experiencing a household under five's mortality since the conflict ended. Recent history of fever and diarrhoeal illness were reported in 47.5% (n=540) and 25.9% (n=294) of the 6-59 month population, respectively.

The nutritional situation in Brazzaville remains non urgent (prevalence global acute malnutrition <10%) but has deteriorated compared to pre-war levels. A post-war increase in under five's mortality, an increased prevalence of acute malnutrition, and positive morbidity data highlight the continuing vulnerability of the under five population. Children who have returned from the villages surrounding Brazzaville and those that continue to remain there are identified as particularly at risk. The findings of the survey support the current level of nutritional surveillance and activity operational in Brazzaville by local and international agencies. The conclusions support careful and responsible transition between the emergency and development phase of the humanitarian response in Brazzaville considering the considerable vulnerability of the population.

III BACKGROUND

3.1 General situation

The Congo has been undergoing severe political and economic turmoil since 1991 leading to a continuous deterioration of living conditions. On 5 June 1997 five months of civil war began which ravaged Brazzaville. By the final phase of the war in October 1997, only approximately 100,000 of pre-war population of 900,000 of the city still remained. Since the end of hostilities in October, large numbers have returned to the city. By February 1998 it has been estimated that 90% of the population has returned. Since the end of the war signs of progress are apparent. However doubt persists on how well the city will be able to meet basic living conditions for its population.

3 2 Nutrition situation

Pre-war data suggests a declining health and nutritional situation in Brazzaville, largely attributed to the continued economic and political turmoil since the early nineties leading to a continuous deterioration in living conditions, health facilities and food security. The population of Brazzaville is largely administrative/civil servant and is traditionally heavily dependant on food imports. Before the war prices of basic food stuffs had been increasing and the nutritional status of the under five's population deteriorating (moderate malnutrition, 2.8%, 1988, 4.3%, 1991)

The Congo has a long history of active nutrition research and surveillance based in Brazzaville and led by the research unit ORSTOM in conjunction with the nutrition unit of the Ministry of Health and UNICEF. Following the 1992 Geneva meeting on Nutrition, a National Plan of Action for Nutrition in the Congo was published in June 1996. This plan summarised the nutrition situation to date in the Congo, identified key areas and devised a number of action plans based on strategies to improve food security, continued nutritional surveillance and community participation.

The five month civil war in Brazzaville greatly disrupted health and nutrition surveillance and activities in Brazzaville. Immediately post war the exact impact of the war on the health and nutritional condition of the population was unclear. As the most vulnerable sector of the population and consequently the most sensitive to a deterioration in the health and nutrition situation, a health and nutrition survey of the 6-59m vaccination population was scheduled to run concurrently with the vaccination campaign. The aim was to identify and quantify vulnerable population groups to ensure effective targeting of humanitarian assistance activities.

In January 1998 Medecins Sans Frontieres (MSF) conducted a nutrition and food security survey of Brazzaville. To prevent duplication of work, the UNICEF/MERLIN survey was delayed until the results of this survey were made available in February. Subsequent to these results the scheduled survey was adapted to collect identified information currently lacking and avoid data replication. The survey was conducted between 4 February and 13 February 1998 in consultation and collaboration with those organisations involved in nutrition and health in Brazzaville.

Objectives

- To assess the prevalence of acute malnutrition in a subgroup of children aged 6-59 months presenting for vaccination
- To collect information on the morbidity of a subgroup of children aged 6-59 months presenting for vaccination
- To determine whether a proportion of the under five's population of Brazzaville had not yet returned to the city since the end of the war
- To collect information on post-war under five's mortality in Brazzaville

IV ORGANISATION

4 1 Method

Between 4 February and 13 February 1998 a health and nutrition survey was conducted at each of the 31 UNICEF/MERLIN vaccination sites of Brazzaville. All children (6m-12y) presenting for measles vaccination at these centres were eligible for inclusion in the survey.

Two surveyors were employed at each centre to conduct the survey. A staff training day was held before the beginning of the vaccination campaign. An update training day was held immediately before the survey commenced.

During the two week period of the survey (weeks 5 and 6), 10% of the attendant population was surveyed. Each day the first child was chosen by random number selection and each subsequent tenth child presenting for vaccination was then surveyed.

Anthropometry (weight, height, presence of bilateral oedema) was performed on all selected children aged over 6 months up to and including 59 months (6-59 m). Carers presenting with this child were questioned on the child's recent morbidity history, children under five years currently present and absent from the household, and under five's mortality since the end of the war. For children aged over 5 years up to and including 12 years (5-12y), household information only was collected. Where a child 6-59m presented with an older sibling only, as much information about the household as reasonable was collected.

All survey centres maintained a personal details record of cases of kwashiorkor identified during the survey to allow for verification and follow up.

During the survey a total of five cases of kwashiorkor were transferred by Merlin to the nutrition ward of Makelekele Hospital.

4.2 Analysis

Analysis was performed using EpiStat version 6.03 and EpiStat version 2.0.

V RESULTS

A total of 2599 surveys were performed over a two week period. Of those children surveyed, 84% (n=2179) were aged 6-59 months and 16% (n=415) were aged 5-12 years.

5.1 Household under five's population (U5) composition

Table 1 Household composition as reported by carers of children surveyed during measles vaccination campaign, Brazzaville, February, 1998

	Mean	Median	Range
	<i>n</i>	<i>n</i>	<i>n</i>
Number of people in household	7.1	6.0	2 - 31
Number of children <5y of household PRESENT in Brazzaville	1 639	2.0	0 - 9
Total number children <5y of household ABSENT from Brazzaville	0 129	0	0 - 8

Of the 2599 carers surveyed, 7.9% (n=205) of the households represented had children under five years absent from Brazzaville.

The total number of children under five years (U5) appropriate for the population surveyed is estimated as

U5 children present in Brazzaville + U5 children absent from Brazzaville + number of U5 deaths since the end of the war = Appropriate U5 population

Applied to the survey figures, the estimated appropriate U5 population is calculated as

$$4259 + 336 + 106 = 4701$$

The proportion of children absent from Brazzaville represents 7.5% (n=336) of the estimated appropriate U5 population of children

5.2 Under five's mortality rate

A total of 3.6% (n=94) of carers reported an U5 household mortality since the end of the war (15 October 1997)

Applying the reported U5 mortality to the total number of people reported per household, the crude mortality rate (CMR) and under five's mortality rate (U5MR) were calculated

$$\begin{aligned} \text{CMR} &= 0.5 / 10,000 / \text{day} \\ \text{U5MR} &= 2.4 / 10,000 / \text{day} \end{aligned}$$

The CMR is at a level typical of a developing country. The U5MR of this population is elevated.

5.3 Age and sex distribution of surveyed under five's population

Table 2 Age and sex distribution of children aged 6-59m surveyed during measles vaccination campaign, Brazzaville, February, 1998

	Male	Female	Total
n	1059	1070	2129
	% (n)	% (n)	% (n)
6-11m	12.1 (128)	11.1 (119)	11.6 (247)
12-23m	23.6 (250)	25.7 (275)	24.6 (525)
24-35m	24.3 (257)	22.5 (241)	23.4 (498)
36-47m	18.7 (198)	20.4 (218)	19.5 (416)
48-59m	21.3 (226)	20.3 (217)	20.8 (443)

The sex distribution of children surveyed is a reflection of the profile of children who presented to the vaccination sites during weeks 5 and 6 of the vaccination campaign. Table 1 is therefore a reflection of the sex profile of the surveyed population only to allow interpretation of the survey results.

The 12-23m and 24-35m age groups contributed to the greatest proportion to the age profile of the survey population. The 6-11m age group was relatively under represented at 11.6% (n=247). Both males and females were equally represented in the survey population with a 1:1 male:female ratio.

5.4 Prevalence of acute malnutrition

Acute malnutrition was divided into global acute malnutrition and severe acute malnutrition as determined by z score and/or the presence of bilateral oedema (kwashiorkor).

Table 3 Prevalence of global acute and severe acute malnutrition by Z score (WHZ) and/or presence of oedema in 6-59m children surveyed during measles vaccination campaign, Brazzaville, February, 1998

	Severe acute malnutrition WHZ < -3	Global acute malnutrition WHZ ≥ -3 to < -2	Kwashiorkor
<i>n</i>	1972	1972	2129
6-59m	% (n) 1.3 (25) (0.8 - 1.9)	% (n) 9.3 (183) (8.1 - 10.7)	% (n) 1.4 (29)

The prevalence of global acute malnutrition in the total survey population was <10% which suggests a non-emergency nutritional situation. The combined prevalence of severe acute malnutrition and kwashiorkor has a relatively high prevalence of 2.7%.

Table 4 Prevalence of acute malnutrition (WHZ and/or presence of oedema) by sex, Brazzaville, February, 1998

	Severe acute malnutrition WHZ < -3	Global acute malnutrition WHZ ≥ -3 to < -2	Kwashiorkor
<i>n</i>	25	183	29
Males (n=981)	% (n) 1.6 (16)	% (n) 11.1 (109)	% (n) 1.3 (14)
Females (n=991)	0.9 (9)	7.5 (74)	1.4 (15)

There was no significance in the prevalence of acute malnutrition between males and females.

Table 5 Prevalence of acute malnutrition (WHZ and/or presence of oedema) by age, Brazzaville, February, 1998

	Severe acute malnutrition WHZ < -3	Global acute malnutrition WHZ ≥ -3 to < -2	Kwashiorkor
	% (n)	% (n)	% (n)
6-11m	2 (4)	9.7 (26)	1.2 (3)
12-23m	1.7 (9)	12.9 (74)	1.3 (7)
24-35m	1.2 (6)	6.6 (35)	1.2 (6)
36-47m	0.6 (3)	0.5 (24)	1.2 (5)
48-59m	0.9 (3)	4.7 (24)	1.8 (8)
6-59m	1.3 (25)	9.3 (183)	1.4 (29)

The prevalence of severe acute malnutrition was greatest in the 6-11m and 12-23m age group
 The prevalence of global acute malnutrition was highest in the 12-23m age group Kwashiorkor was most prevalent in the 48-59m age group

5.5 Prevalence of chronic malnutrition

The prevalence of chronic malnutrition (stunting) was defined as a height z score (HAZ) of less than -2 Stunting is a reflection of a chronic rather than an acute situation The prevalence of stunting in the population surveyed is therefore not presented in anticipation of a war induced effect, but to compare how reflective the population surveyed is to that surveyed in pre-war Brazzaville

Table 6 Prevalence of chronic malnutrition (HAZ<-2) by sex, Brazzaville, February, 1998

	Male	Female	Total
<i>n</i>	981	991	1972
Moderate HAZ < -2	% (n) 22.3 (220) (19.8 - 25.1)	% (n) 19.5 (194) (17.1 - 22.1)	% (n) 20.9 (414) (19.2 - 22.8)
Severe HAZ < -3	9.2 (91) (7.5 - 11.3)	8.8 (88) (7.2 - 10.8)	9.0 (179) (7.8 - 10.4)

5.6 Morbidity indicators of under five's population

For all 6-59m children surveyed, recent (1 week) history of fever and diarrhoea was investigated and the presence of scabies noted The proportion and number of children with positive history/presence is outlined in table 7

Table 7 Morbidity indicators for children aged 6-59m surveyed during vaccination campaign, Brazzaville, February, 1998

	Diarrhoea	Fever	Scabies
6-29m	% (n) 25.9 (294)	% (n) 47.5 (540)	% (n) 18.6 (212)
6-59m	19.4 (422)	42.7 (929)	16.5 (359)

There was no significant difference in health status variables found between males and females
 A positive history of diarrhoea and fever was more prevalent in the 6-29m age group

5 7 Comparison with pre-war Brazzaville

As part of established nutritional surveillance in the Congo, the pre-war prevalence of malnutrition in the urban population of Brazzaville has been documented through a series of nutrition surveys. The most recent prevalence figures were available for those surveys conducted in 1988 and 1991.

Table 8 Comparison of prevalence of acute malnutrition of MERLIN/UNICEF survey with pre-war nutrition surveys of Brazzaville, Brazzaville, February, 1998

	n	Severe acute malnutrition WHZ < -3	Global acute malnutrition WHZ \geq -3 to < -2
		%	%
1988	2288	0.5	2.9
1991	2334	1.1	4.2
MERLIN/UNICEF 1998	2129	2.7	9.3

The prevalence of stunting found in the UNICEF/MERLIN survey of 20.9% is comparable with pre-war levels of chronic malnutrition for the total Congo (21%, 1991), but higher than that reported for the urban population alone (12.9%, 1991).

Before the recent conflict in Brazzaville, the acute nutritional status of the under five population of the city had been declining, associated with a deteriorating food security and the socio-economic conditions of the urban population. The results of the UNICEF/MERLIN vaccination survey may reflect a sector of the population more malnourished than reflected in the total population survey of pre-war Brazzaville.

5 8 Comparison with post-war Brazzaville

On 15 January 1998 a random cluster nutrition survey of Brazzaville was conducted by Medecins Sans Frontieres (MSF). The preliminary results of the MSF survey are compared with the prevalence of malnutrition found in the MERLIN/UNICEF vaccination campaign survey. This comparison should be interpreted in the context of the difference in the populations surveyed. The MSF survey was household based and is statistically representative of the total population. The MERLIN/UNICEF survey was made of a sub-group of children presenting for measles vaccination and cannot be assumed as representative of the under five population as a whole but solely of that sub-group of children surveyed.

Table 9 Comparison of the prevalence of acute and chronic malnutrition conducted by MSF and MERLIN/UNICEF, Brazzaville, February 1998

	Severe acute malnutrition WHZ < -3	Global acute malnutrition WHZ \geq -3 to < -2	Chronic malnutrition HAZ < -2
	%	%	%
Merlin/UNICEF survey	2.7	9.3	20.9%
MSF nutrition survey	1.6	5.5	18.6%

The prevalence of global acute and severe acute malnutrition in the vaccination population is higher than in the general population surveyed by MSF. This is likely a reflection of not only different survey populations but also the different timing of the surveys. In the MSF survey, it was suspected that a proportion of the under five population had not yet returned to Brazzaville. One month later it is possible that more children may have returned and presented for vaccination, thus being included in the UNICEF/MERLIN survey. It has been suspected that this returning population may be particularly vulnerable and therefore demonstrate a higher prevalence of malnutrition. The experience of the vaccination survey substantiates this view. In particular investigation of cases of kwashiorkor have repeatedly been associated with return from rural villages.

VI CONCLUSION

The UNICEF/MERLIN health and nutrition survey findings substantiate the local working experience that a non urgent but precarious nutritional situation remains in Brazzaville. The UNICEF/MERLIN survey substantiates that not all of the under five population have returned to Brazzaville. The survey also suggests an increased post war under five mortality rate, confounding the levels of morbidity and prevalence of malnutrition observed in the population. These findings highlight the extreme vulnerability of this population, both of those that still remain in the villages and those that have returned to Brazzaville.

There is a high risk that the semblances of returning normality that currently prevail in Brazzaville mask an extremely vulnerable population, the most sensitive marker being the under five population. The conflict may be over but a relatively silent aftermath continues. In a population greatly dependant on food imports, food prices continue to remain high and payment of administrative salaries continue to be delayed. The capacity of this population to achieve and maintain a basic standard of living without an improvement in the economic situation remains in question.

The observations of the survey strongly support the continued work of organisations such as ORSTOM and the Nutrition Unit of the Ministry of Health and UNICEF who have been comprehensively involved in nutritional surveillance and activities in Brazzaville before the recent conflict, and pro-actively involved in its aftermath. Through the co-ordination of local and NGO working experiences in Brazzaville, key areas of intervention have already been identified and activities begun. In particular attention has focused on nutritional surveillance, acute malnutrition management according to international standards, and the need to integrate all activities into local structures. The vulnerability of the family as well as the child is recognised and a strong appreciation of the importance of the prevailing political and socio-economic situation in determining the nutritional status of the population.

Both local and international agencies and organisations are currently active in nutrition in Brazzaville co-ordinated through UNICEF. There is a risk that as the emergency perception of post war Brazzaville finishes and the international emergency organisations leave, a void is left before a development strategy evolves. An appreciation of the continuing vulnerability of this population is essential to ensure a safe and responsible transition between the varying phases of response. In the area of nutrition, central to this smooth transition is the critical role which the research unit ORSTOM, the Ministry of Health and UNICEF continue to play in local nutrition activities. To this end all findings, conclusions and recommendations of MERLIN's nutrition activities have been communicated and discussed with these organisations that will remain and continue to work in the area of nutrition in Brazzaville.