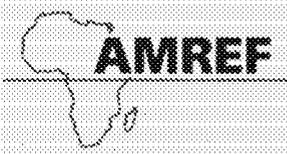


PD-ACA-814

MEDICAL ASSISTANCE PROGRAM

For Survivors of the 1998 Nairobi Bomb Blast

Final Project Report
July 99 to September 2003

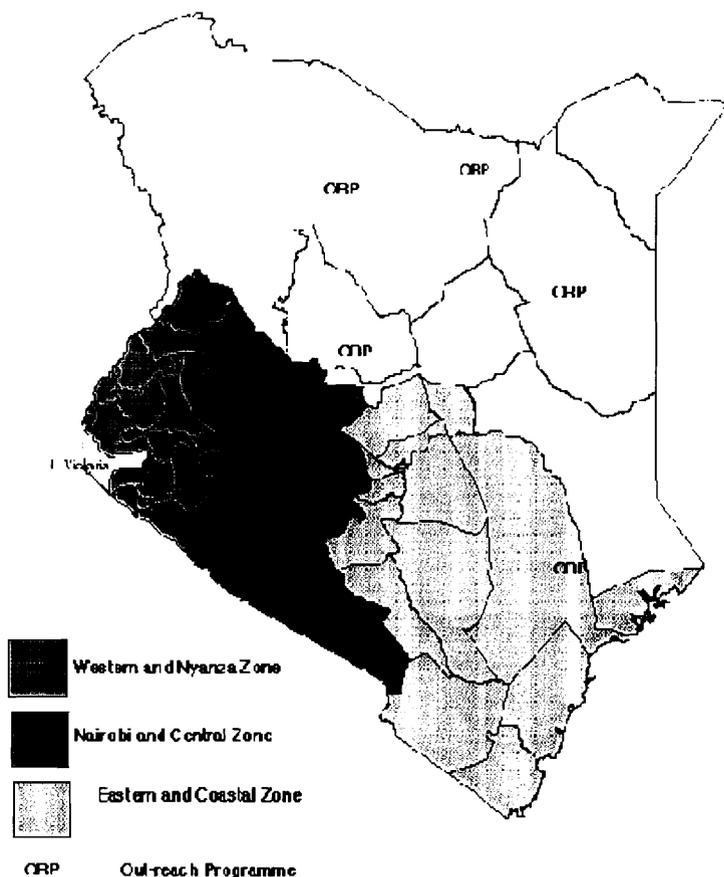


KENYA

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AMREF Kenya Programme Areas



About AMREF Kenya

The African Medical and Research Foundation (AMREF) is an independent non-profit, non-governmental organisation.

Its mission is to improve the health of the disadvantaged people in Africa as a means for them to escape poverty and improve the quality of their lives.

AMREF defines the disadvantaged as people who suffer high prevalence *and* impact of major health problems and challenges including malaria, HIV and AIDS, adolescent and reproductive health, water and sanitation, and have poor access to health care.

Founded in 1957, AMREF has its headquarters in Nairobi, Kenya. It has country programmes in Kenya, Uganda, Tanzania, South Africa, Mozambique and Ethiopia, and major projects in southern Sudan, Somalia and Rwanda.

AMREF in Kenya

Until 1996 the activities in Kenya were run through the AMREF Head Office. As part of a decentralisation process, the AMREF Kenya programme was established with its own management structure and programmes. AMREF Kenya is the largest country programme undertaking about 30 percent of all AMREF activities.

To achieve its mission, AMREF implements its projects through its country programmes, learning from those projects and using the information and knowledge gained to inform and influence others.

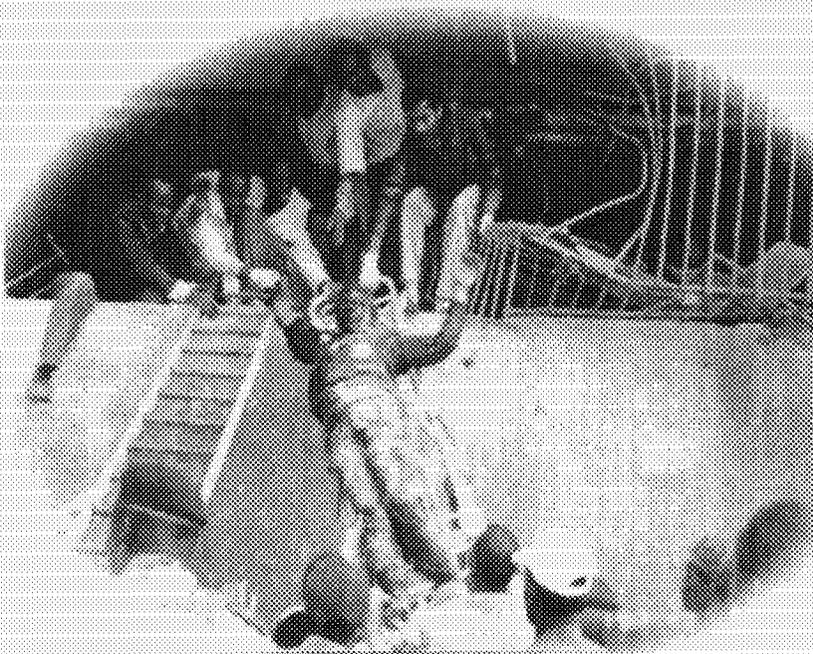


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Executive Summary

Name of Project:	Medical Assistance Program (MAP)
Target population:	Survivors of the 7 th August 1998 Nairobi Bomb Blast
Project Location:	Nairobi - Kenya
Budget:	USD 2,879,737
Duration of Project:	July 1999 to September 2003 <i>Four years and Three months</i>



Introduction

An enormous powerful blast wave starting at the same instant but traveling slowly would destroy even reinforced concrete buildings for a radius of two kilometers, and ordinary brick or timber frame houses out to eight kilometers. Major damage to houses would extend out to fourteen kilometers and windows would be broken at twenty or thirty kilometers. Immediately following the blast wave would be force winds, first outwards from the explosion and many seconds later inwards to replace the air that went out. The wind would be sufficient to drive glass splinters into people. Those in the open would be picked up and hurled into any objects strong enough to be still standing. It is estimated that the effects would kill about fifty per cent of people.

Injuries sustained

When a bomb explodes, a number of lesions may occur as a result of different mechanisms. Primary blast is the injury resulting directly from the blast wave itself. Secondary and tertiary blast injury describes injury resulting from fragments propelled by the blast wave and displacement of an individual by the blast wave.

The lesions may be: -

- Primary, due to the effects of pressure changes in the environment
- Secondary, due to pieces of the bomb casing
- Secondary projectiles and collapse of walls
- Tertiary, due to the effects of acceleration on the body or body parts of it
- Flash lesions and lesions caused by hot gases
- Inhalation of toxic gases produced by the detonation and/or combustion.

Cutaneous lesions are caused by thermic energy caused by the detonation. The blast wave, amplified by tunnel effect, together with the inhalation of hot air can in theory cause thermal damage prevalently located in the upper airways. Primary injury is caused directly by the blast wave and encompasses injury to air containing organs such as lung, ear, and bowel. A study on biological effects of weak blast waves and safety limits for internal organs injury in the human body showed that the organs most sensitive to TNT explosion were the lungs.

Background

At about 10.30 am on the 7th of August 1998, suicide terrorists detonated a one tonne Bomb at the basement entrance of the American Embassy, which was located in the busy central business district of the city. It was adjacent to several important busy institutions such as the Teacher's Service Commission, Commercial banks, a secretarial college and the railway station. It was also next to the road leading to the main bus station and the largest fresh produce market in the city. Since it was mid morning there was maximum activity within and around the offices, a large number of people from diverse backgrounds were affected. The blast destroyed reinforced concrete buildings and shattered windows, causing the deaths of over 215 people and more than 5,000 people injured.

Within minutes, a multitude of people rushed to the site, and began search and rescue exercise using resources at hand, while putting their own health at risk. Means of transportation to hospitals was no problem, as every car at site was mobilized for that purpose. The Kenya Army experienced great challenges in coordination efforts at the scene of crime. Saving lives was the priority of thousand of medical and paramedics at the site and in the seven major hospitals around the city where the injured were first attended to. The Kenyan Government, public and private institutions, Non-Governmental organizations and individuals mobilized medical and non-medical resources, donated blood and offered essential services to assist in the response. International response for search and rescue and immediate medical care, from the Americans and other

Governments was overwhelming. Professional psychological care was attempted immediately after the tragedy but was not embraced due to the perceived priorities.

Soon after the emergency period, NGOs and religious organisations with varying specialties entered into the rehabilitation/recovery period. AMREF assisted in restocking of medical supplies in health facilities, and teamed up with United States and Agency for International Development (USAID) and Kenyatta National Hospital (KNH) three months after the tragedy in conducting a screening exercise that was used to plan for a reconstructive surgery exercise. In March 1999, a seven days reconstructive surgery exercise at KNH was conducted for 350 survivors by a team of local and overseas specialities.

Realizing the need for continued rehabilitation, USAID funded various organisations to implement physical, psychological and social economic rehabilitation for those affected by the blast. AMREF was mandated to implement physical rehabilitation for the survivors, and intensified its activities in June 1999, with the initial funding of USD 1.6 million.

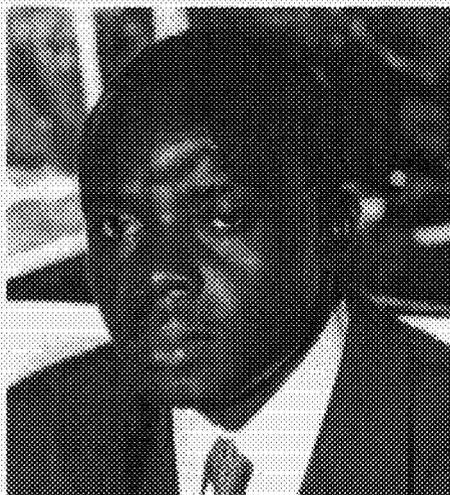
1. PROJECT GOAL AND OBJECTIVES

1.1 Goal

To ensure optimum rehabilitation (*physical and psychological*) for survivors of the 7th August 1998 Nairobi Bomb Blast.

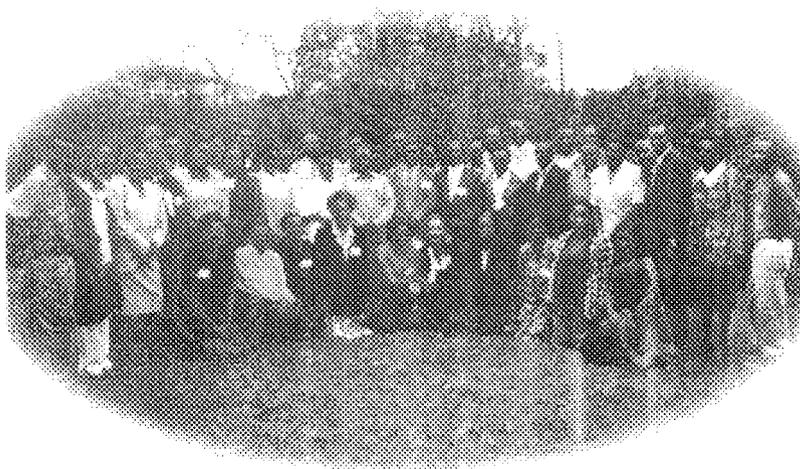
1.2 Objectives

1. Ensure the start and/or completion of reconstructive, ophthalmology, orthopedic and dental surgeries.
2. Ensure adequate rehabilitation, in form of physiotherapy, hydrotherapy and occupational therapy to survivors that require the services.
3. Identify, assess and assist special cases that need specialized medical treatment and rehabilitation outside the country where



Ernest sustained eye and facial injuries

- in country care is not available.
4. Provide therapeutic devices as necessary - including dentures, bridges, eyeglasses, orthopedic prosthesis, lumber corsets, hearing aids, and eye prosthesis.
 5. Study the milestone development of babies born to mothers affected in the bomb blast
 6. Assist in co-ordination of agencies working for bomb blast survivor's projects.
 7. Collection, synthesis and dissemination of information to NGOs/ patients and government bodies on bomb blast related matters.
 8. Form communication network for implementing agencies through the development of website on bomb blast survivor assistance, in view of verification of true survivors; avoid duplication of services provided and information on survivor assistance being offered.



Service providers from hospitals and implementing agencies during one of the workshops

9. Research on overall medical responses to the bomb blast and national impact

2 Project layout

A holistic approach in rehabilitation of survivors was used in order to ensure maximum impact in a cost effective way. This included networking with the other organizations implementing rehabilitation programs for the survivors, including the Adventist Development and relief Agency (ADRA) which was an umbrella organization for Kenya Society for the blind (KSB) - implementing rehabilitation for the blind; United disabled persons of Kenya (UDPK) - implementing economic rehabilitation; Association for the Physically Disabled Persons of Kenya (APDK)- implementing physical rehabilitation and Kenya National Association for the Deaf (KNAD) - implementing rehabilitation for the deaf. Kenya Red Cross and AMANI implemented the mental health program while Ernest and Young implemented the Education Support Program.

AMREF Medical assistance Program had three key project activities: -

- Medical care
- Operational research
- Facilitation for coordination of agencies implementing the various rehabilitation programs.

2.1 Strategies

2.1.1 Project design

The project started at a time when the need was at hand, as it preceded by a disaster. It was decentralized to ensure survivors outside Nairobi had access to care. Due to the myriad of injuries sustained, networks were formed with medical consultants with different specialties, as well as health facilities and pharmacies. They were thirty medical consultants from various fields including: - neurology, ophthalmology, dental, ear nose and throat, dermatology, reconstructive surgery, internal medicine, orthopedic, urology, gynecology and pediatrics. Health facilities offered services including: - investigations, hospitalizations and physiotherapy.

2.1.2 Selection/registration criteria

Systems were put in place to ensure that the project offered services to the target group only (1998 bomb blast survivors). All survivors reported to the AMREF office on their first visit, and were required to produce evidence on being involved in the bomb blast, which include a certified medical report of were she/he was first attended after the blast. For persons who claimed to have been involved and not treated, a letter from the employer or an administrative person was required, and further verification done by an AMREF physician. An individual file was opened, which contained the client's personal information, his/her past and present medical history and the present diagnosis. A registration number was given and depending on the nature of injury, referral to doctor(s) was done.

2.1.3 Policies and procedures

To assist in monitoring, the project set policies to govern it's operations which included:-

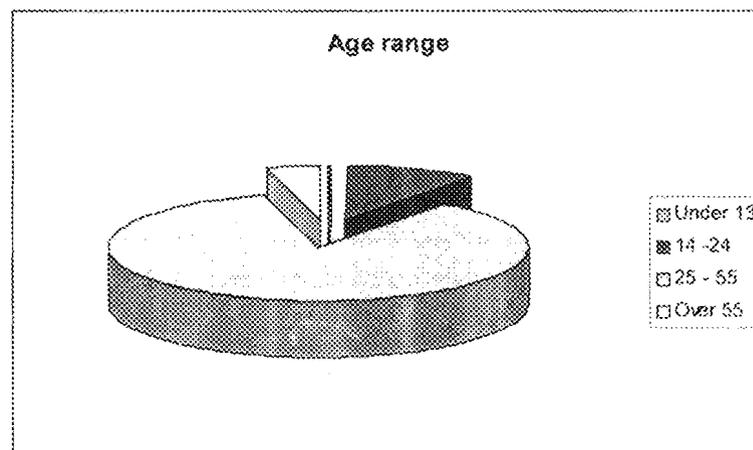
- Registration of clients by appointed senior project staff
- MOUs were signed by the doctors and service provides, with details on referral procedures, identification of clients, access of client information by the project, details on charges, and communication to the project before invasive procedures. Consequences of violation of the document were also detailed
- Provisions of devices such as eyeglasses, hearing aid, lumber corsets, were done once only.
- Medication was only dispensed at the pharmacy located at AMREF after authorization by the project nurse.

2.1.4 Monitoring and evaluation

As a guide to attiring project goals and objectives, monitoring and evaluation was done mainly through:-

- Backstapping from the AMREF technical team
- Monthly project reports to AMREF technical team
- Quarterly donor reports
- Written feedback from clients
- Communication from the donor
- Mid term evaluation conducted

Figure One-age categories of the client



- Clients reports from doctors
- Individual client files with relevant documents including medication prescribed
- Individualized accounting systems

3.0 Medical care

An overview of the client base and services rendered during the four years of the project implementation.

3.1 Demography

The total registered client base was One thousand, four hundred and two (1402). About 53.1% were female and 46.9% male. The age range was 1 to 77 years, with a mean of 38years. Children under thirteen years were 0.2%; 14 to 24 years- 10.3%; 25 to 55 years 85.6% and over 55 were 4.1%. In addition, 49 children who were in utero at the time of the blast were among the client base.

3.1.1 Marital status

About 66.1% were married, while 24.9% were single, 2.1% divorced and 2.6% widowed.

3.1.2 Dependants

Number of children dependants was as follows: - 1-3 children 69.1%, 4-6 children 24.8%, and 7-10 children 5.3%.

3.1.3 Nationality

About 97.5% were of Kenya Nationality.

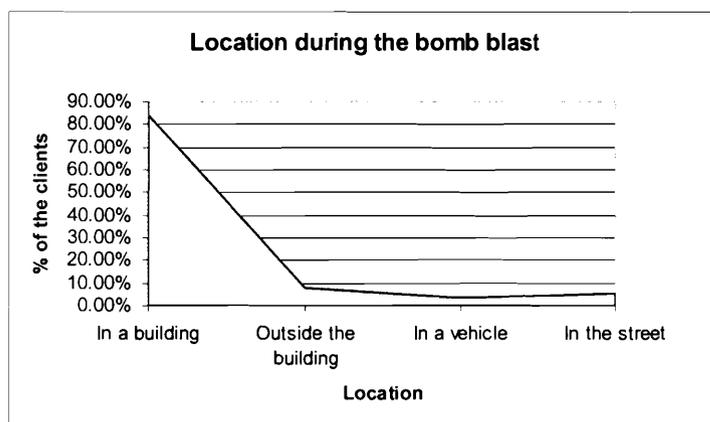
3.1.4 Occupation

About 31.2% of the clients held occupations ranging from managers, executives and professionals, while 66.1% held either skilled or semi-skilled manual and non-manual jobs.

3.1.5 Location at the time of the blast

About 83.9% clients were in a building at the time of the blast, 7.8% were outside a building, 3.4% were in a vehicle, while 4.9% were in the streets. About 78.5% of the clients were within a radius of 100meters of the epicenter of the bomb blast, 9.5% were within 200 meters radius, 8.1% within 300 meters radius and 2.4% within 400 meters radius and the rest were with more than 500 meters away.

Figure two - Location of the clients at the time of the blast



3.2 MEDICAL CONDITIONS

All clients had more than one medical problem - average was 2.5 per client. A number of lesions occurred due to the direct effects of the blast, and complications occurred due to effects of initial injuries, and reaction of various body systems to the tragedy. As noted below, the number of complications outweigh the initial injuries in frequency, intensity and implications.

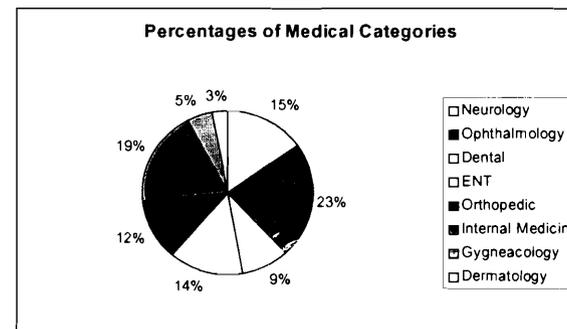
3.2.1 Primary injuries

Injuries sustained were as a result of flying sharp objects, dust and cement from cracking walls and office partitions, concrete blocks from collapsed wall and partitions, the blast wave and sound; the thick smoke and the stampede. Injuries sustained included minor to deep cuts, fractures and dislocations, spinal injuries, nerve injuries, head injuries, burns, eye perforations, ruptured eardrums, embedded foreign bodies, loss of teeth and severed body organs among others.

3.2.2 Secondary illnesses

Secondary illnesses diagnosed during the follow up of the clients include keloids and Post head injury syndrome, neurological pains, cervical spondylosis, posttraumatic convulsions, allergic conditions, eye complications, hearing impairment, gum diseases, posttraumatic arthritis, osteoarthritis, spondylosis, prolapsed intervertebra disc, hormonal imbalance, contractures, chronic ulcers of the skin, Posttraumatic stress disorders, neurosis, psychosis, Posttraumatic stress symptoms, depression, blindness, refractory errors, sight impairment, hypertension, peptic ulcers, among others. These conditions necessitated; active management including investigations, replacement, intensive rehabilitation, education, medication and long term follow up.

Figure three - Categories of medical conditions diagnosed



3.3 Management

The primary injuries, required invasive management with short-term follow up, while the secondary illnesses required conservative management with long-term follow up.

3.3.1 Invasive management

This included revision of scars, plating of fractures, removal of foreign bodies, replacement of lost teeth, repair of ear perforations, repair of eye injuries, removal of implants and provision of prosthesis. In addition, short term medication for pain relieving and antibiotics were given for minimum of one week, to one month



3.3.2 Conservative management

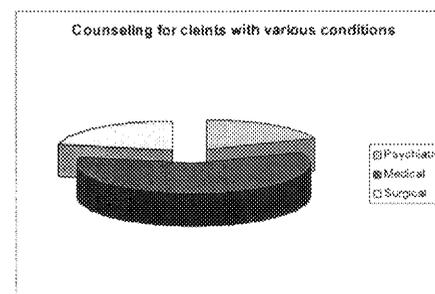
This was mainly for complications and included continuous physiotherapy and rehabilitation of those with permanent disabilities and investigations to confirm illnesses such as peptic ulcers and hypertension. In addition, longterm medication to control and/or treat conditions such as hypertension, hormonal imbalance, peptic ulcers, allergy, diabetes and arthritis was prescribed and issued for several months or years. Close follow up to monitor conditions and response to medication was done.

3.3.3 Psychotherapy

Two hundred and fifty one (251) clients underwent counseling since the integration of counseling in the medical assistance program - June 2000. The male female ration was 1:1.1, and the age range of the clients was 7 to 78 years. All clients seen suffered from post traumatic stress disorder, and had medical conditions ranging from

hypertension, peptic ulcers, diabetes, hormonal imbalance, sexual dysfunctions, asthma, allergic conditions and arthritis. Surgical conditions ranged from spinal injuries, ophthalmologic conditions and foreign bodies in the tissues.

Figure four - Categories of counseling according to medical conditions



Symptoms presented included loss of memory, withdrawal, irritability, anger, intrusive thoughts, flash-backs, nightmares, hallucinations, resentment, arousal, and sexual dysfunctions. Mothers also stated that their children presented with symptoms of exaggerated startle reflex, arousal, irritability, temper tantrums, excessive crying and clinging to their mothers.

Focus group therapy sessions and peer counseling was offered in addition to individual counseling. This enabled clients to vent out their fears, frustrations and problems through sharing with others who have similar experiences. Participants were educated about posttraumatic stress disorders and its management.

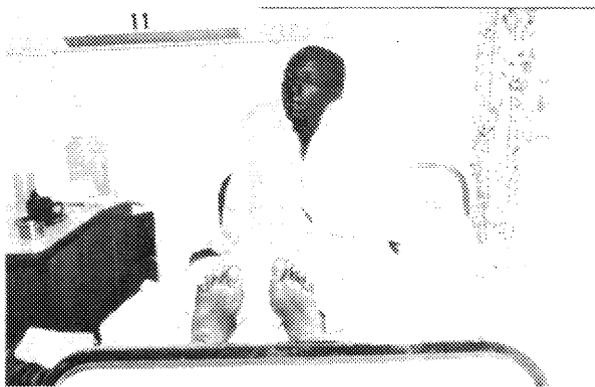
In addition, a total of thirty education workshops (in clusters of ten workshops per year) were held in three consecutive years starting from the year 2001. This was aimed at helping clients understand themselves better and provide them with skills to cope with their problems, hence promoting recovery. A total of 1551 participants attended the workshops facilitated by a psychologist, medical doctors, a physiotherapist and nutritionist. Beneficiaries of the workshops included the bomb blast

survivors, their spouses, widows/widowers and employers. Recognition and management of medical conditions were addressed; including allergies, hypertension, peptic ulcers, neurological manifestations, gynecological issues, stress, ophthalmology and orthopedic.

Following the psychotherapy interventions, clients cultivated positive attitudes towards themselves and decided to move on with their lives. They showed interest in the management of their problems that initially was the service providers' problem and not theirs. They appeared brighter and curious to learn more about themselves. They acknowledged that most of the symptoms they presented with were as a result of stress and lack of understanding about their problems. They voiced the need to work on these problems to improve their health, while spouses resolved to love and support their affected partners holistically.

3.4 Cost implications

Cost of medical care varied, depending on the diagnosis, type of management, compliance of medical regimes and response to medication or rehabilitation regime. Straightforward surgeries such as removal of foreign bodies or reconstructive surgery had high short-term costs, while those with secondary illnesses incurred high-prolonged costs due to frequent medical consultation, investigations and medications. Likewise, for hospitalized clients, those with medical conditions had a long stay, compared to those that went in for surgery.



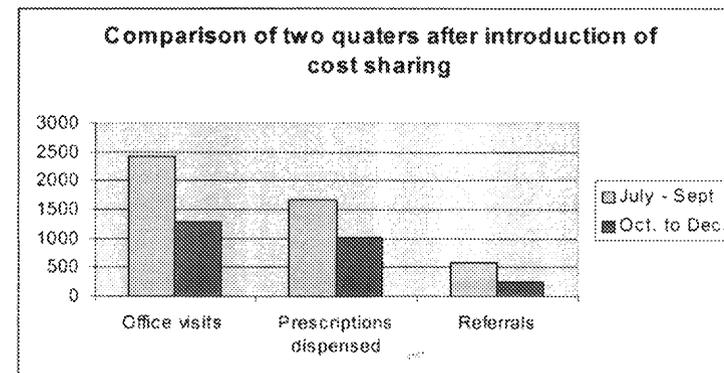
Richard recuperates in hospital after surgery

3.5 Cost sharing

Cost sharing was a concept initiated at project inception, as a phase out strategy. The aim was to promote self responsibility towards ones health, encourage participation of family members on the clients health care through contribution towards their medical expenses and prevent misuse of services especially medication. In deed, cost sharing instill a willingness to clients to get better and not cling on the program or be dependant, while those taking advantage of the project stoped coming for services.

The concept was first introduced one and a half years after the start of the project. Clients were required to pay Kshs 100 per medical consultation and Kshs 100 for every prescription dispensed. This was later increased to 10% per prescription dispensed, hospitalization and investigations done, but the Kshs 100 per consultation was retained. Due to the low socio-economic status of the clients, close monitoring was put in place to ensure that the overall project goals and objects were not jeopardized. A waiving system for the desperate cases was put in place. By introducing this strategy, clients were able to make a choice on which doctor to see, as opposed to seeing different specialties which was necessary in the beginning due to the multiple injuries and complications. They were also aware of the medication they were taking, as they had to pay for them, and only visited the doctors for a valid reason. The effectiveness of the cost sharing was realized three months after it was introduced with the reduced project activities as shown in the graph below. This was attributed mainly to reduction of medical consultations done, choice of medication to be taken, and reduction in misuse of the project by those that did not

figure Five - Effects of cost sharing



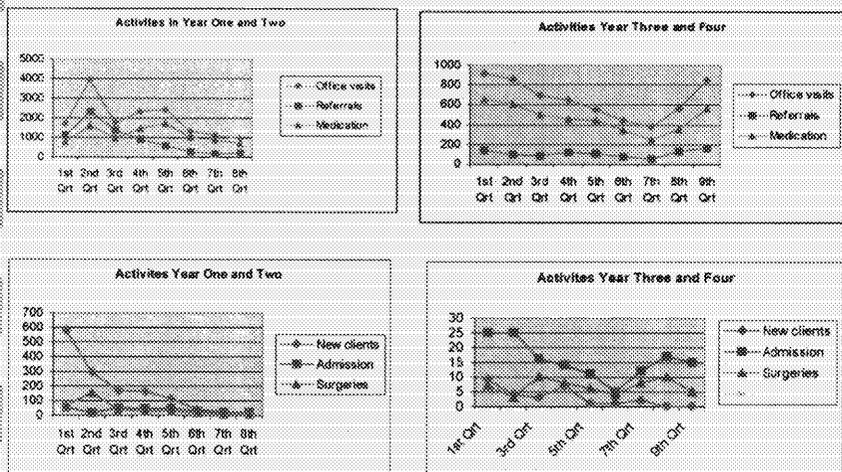
require assistance.

4 Project outputs

4.1 Flow of Clients

The pick of the project activities were centered within the first two years, with the first year having the bulk of the total four-year project activities. There was a noted decline after the second year, and a sharp influx during the last two months of the project life.

Figure six - Activities during the four-year period



Note the change in figures on the Y axis in the graphs

About 85% of the total registered client base, and 65% of referrals were within the first year of project implementation. A comparison in performance output during the first and second half of the project life is as shown in table one.

4.2 Admissions and surgeries

Number of clients hospitalized during the project period was 369. Male female ratio of 1:1, with a medical and surgical ratio of admission at 1:1 of the medical admissions, 29% were psychiatry conditions.

Total numbers of surgeries were 405 over the four years with 69% being performed during the first year, 15.8% the second year and 15% during the second half of the project life. Most surgeries were performed as day cases, while other clients for major surgery were hospitalized. The operations were mainly reconstructive surgery, Ophthalmology, orthopedic and ENT. Details of admissions are stated in project report part two - clients and admission details.

Table One - Activities

	First half (June 99 to July 2001)	Second half (June 2001 to Sept. 2003)
Office visits	73.5%	26.5%
New clients	98%	2%
Referrals	84%	16%
Medication	70%	30%
Admission	68%	32%
Surgeries	85%	15%

4.3 Overseas treatment

Where in country expertise or equipment was unavailable, the project facilitated treatment overseas. Countries where treatment was sort included Germany, USA, UK, Netherlands and South Africa. Patients who went overseas for surgery accounted for 3.5% of the total number of surgeries done. About 81.1% had ophthalmologic conditions, while the rest were reconstructive surgery, ear surgery and orthopedic surgery. *Details of the clients are given in annex one.*

4.4 Prosthesis

A total of fourteen clients who lost one eye in the tragedy were issue with tailor made eye prosthesis which made it almost impossible to differentiate them from the normal eye. Two clients received leg prosthesis after amputation of the limb. Other support devices prescribed and issued included eyeglasses, lumber corsets and walking stick/frame. *Details of clients are shown in annex two.*



*Grace has a Prosthesis in one eye.
Guess which one!*

4.5 Therapeutic devices

A total of 90 hearing aids were given to persons who suffered varying degrees of hearing impairment. Thirty-three clients received bilateral hearing aids, while the rest received one, depending on the affected ear. The male female ratio of the 55 persons who benefited was 1.2:1. *Details of the clients are shown in annex three.*



*Anastasia, a happy mother after
receiving a widex hearing aid*

4.6 Silent Victims

A paediatrician followed up children born to pregnant mothers who survived the bomb blast, also referred to as the 'silent victims'.

Most babies were physically normal at birth and the few abnormalities seen could not be attributed to the blast. Behavioral problems commencing in the first weeks after birth and quite disturbing, were the major problems observed. These centered on hyper-arousal, with startles, disturbed sleep and excessive crying in the early months. Later, children were noted to be very scared, frightened easily, with bad tantrums, hot

tempers and generally described as cowards and difficult children. There were also notable physical ailments that were more frequent and more severe than normal, mostly upper and lower respiratory tract symptoms and skin allergic manifestations, with very frequent clinic visits and hospitalization. A gradual improvement in both the behavioral and physical problems was noted over time and by 3 1/2 years, most children appeared and generally behaved normal. A psychological assessment has been conducted on these children and further follow-up is highly recommended to see the final outcome over a longer period.



A section of the children who were in utero at the time of the bombing

4.7 Coordination with other implementing agencies

AMREF spearheaded coordination of implementing agencies that included ADRA, Kenya Red Cross, Ernst and Young, and AMANI. Monthly coordination meetings were held in either of the partner's offices in rotation. The meetings were aimed at ensuring holistic approach in rehabilitation, and mainly centred on client management, liaison between the partners, solutions to challenges and problems encountered, and other issue pertaining to the clients activities.

The meetings enhanced coordination and communication between partners, increased the understanding of activities in each agency sharing of resources facilitated client care through multiple inventions such as visits to clients by various specialities like physiotherapist, counsellor and social worker. In deed, the networking enhanced teamwork, aided in prevention of duplication of purpose, prevention of fraud from the clients and ensured sound decisions making on individualised client care. The forum also served as a place for advice and decision

making in difficult cases.

Other modes of communication between partners such as telephone, print and electronic media was encouraged for verification and /or clarification of information given by clients and for prompt decision making. This networking prevented unnecessary movement of clients from one agency to another and aided in transparency between clients and agencies.

In addition, sharing of knowledge between partners was done through education workshops. These served as good capacity building forum, where project activities and research findings were shared, and peer review and comments encouraged. Workshops outside Nairobi had an added advantage in that it provided a time for psychotherapy (care of the caregivers), and an opportunity for staff to know each other outside the stressful working environment.

4.8 Operational Research

The project has documented a 265 page medical monograph titled 'Beyond the Scars'. It reveals the effects and impact of the blast on various body systems; beyond the visible blood and scars seen on the day of the tragedy, and few days after. About 68% of study population received initial medical care at public institutions. 6.4% of the female survivors who were pregnant at the time of the blast and followed up gave birth to live babies.

About 36.5% of the study population developed neurological complications, and 32.5% developed post head injury syndrome. The relationship between post head injury syndrome and stress-related illnesses of peptic ulcers and respiratory problems was found to be highly significant, ($p= 0.00$). The issue of mood disorders found in the African population is addressed, which revealed that 55% of those who sought psychological assistance had moderate to severe depression, reflected in somatic symptoms. Clients with 'social illnesses' scored high in neurosis and psychosis.

About 53.3 % of the study population had eye injuries, but only 31eyes had ophthalmologic assessment recorded within the first 48hours, signifying the attention given to assessment and care of vital organs during emergencies/disasters. About 21.9% of the study population was followed up for dental conditions. Documentation on dental injuries was highly insufficient in the initial and intermediate stage, although

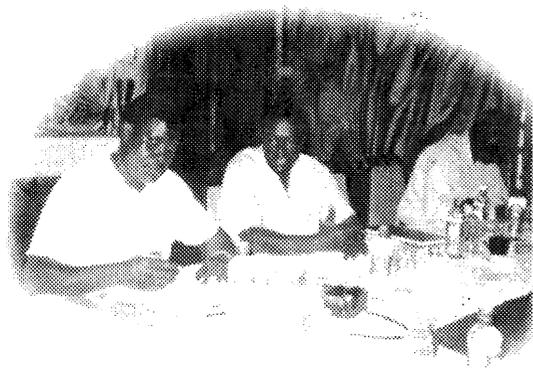
the relationship between facial and head injuries was significant. Fractured and loose teeth comprised over 50% of the dental diagnosis. About 44% of the treated cases had related gum diseases and dental carries.

About 33% of the study population were treated and followed up for ear, nose and throat problems. The reported number of ears that suffered hearing impairment, as a result of the blast was 111, with 23 of them having ruptured eardrums. Allergic conditions were reported in 49% of the followed up cases, and 11.6% had tinnitus. About 30% of the study population sustained orthopedic injuries. Fractures accounted for 11.9%; joint injuries 24.2%, tendon injuries 4.2%, nerve injuries 3.6% and back injuries were 28.5%. About 55.4% of the clients developed posttraumatic arthritis and osteoarthritis. Dermatological and gynecological findings are noteworthy, especially the effects of stress on vital organs. This opens avenues for further research in these fields.

Among the lessons learnt from this study, is need to underscore that during disasters, professionals must be conscious about illnesses/injuries that are beyond the obvious blood and scars. This book will be available after publication.

Three years after the tragedy, a cross sectional study on the psychological effects of the blast on the children, and their mothers were conducted. A control study on a group of 41 non-traumatised mothers was conducted and results analysed. The study measured the posttraumatic effects on the mothers, and childhood personality scale of children. All subscales showed abnormal scores in the study group, with low scores in depression and high score in hyperactivity. Scores on the childhood personality profile subscales for the control group were normal, except for hyperactivity and creativity, but which were insignificant compared to the study group. There was a significant correlation between the abnormalities in the study group children and the PTSD symptoms in their mothers and also between the childhood personality profile and the gestation age at the time of the blast. It is concluded that stress in the mothers impacted negatively on the

psychological development of the children and that the earlier the gestation at the time of the exposure, the more the severe the effects. The complete research paper is ready, and will be available after publication.



Dr Owen and Dr Nyaga during a documentation workshop

5 Impact

At the individual level, survivors received optimum medical care, which contributed to the physical and psychological recovery. Clients were able to return to their physical activities - those with hearing impairment could hear again, those that broke limbs could walk and work with their hands as before and so on. In addition, physical and psychological recovery enabled the clients to have or regain their confidence and self esteem levels, hence be able to perform their duties as wives or husbands, employee and community members to the optimum. These certainly enhance social reintegration. Clients were able to resume work have income for self and family.

The relationship between the family members is deep and interwoven so much so that in a healthy family, when one member is traumatized (physically and/or psychological) others know and are affected

immediately, hence becoming secondary victims. The family members association with each other becomes less flexible, their roles rigid, and they hide other feelings and impulses. This breakage may cause marital animosities and hence disturbances of communication between the family members, in addition to increased responsibilities on the spouses and children. With the recovery of clients through medical care, counseling and education workshops, family members also recovered. In deed, since the family did not invest in medical care (as the program was meeting the expenses), clients were more accepted, and not viewed as a liability, nor were activities suspended at the expense of medical care. In addition, they were able to meet the nutritional needs of client, hence promoting recovery. "I can now make a cup of tea for my husband and children" said Zipporah after two years of intense medical care following head injury during the bomb blast. This meant a lot to her and the family. "I can now satisfy my wife, and I feel like a man," said one male beneficially, whose family was in turmoil when he was sick. Another man was very happy and proud after his wife (who was severely injured and disfigured on the face) gave him a son three years after the bomb blast - it proved that despite the tragedy, she was still a woman.

About forty percent of our client base were employees from the Teachers service commission, which was located close to the epicenter of the bomb blast. Having so many clients with physical and psychological trauma was an added task for the company that had to relocate business and had lost many important documents in the tragedy. Majority of the clients were absent from work many months (some up to one year) after the bomb blast. Majority of clients that we served were civil servant and small business people, with no medical care cover. The project thus played a major role in their recovery. When they resumed work, performance and output from the clients was low. As medical care was continued, client condition improved, sick offs were less, work performance and output increased and the entire organizations performance impact could be felt by those it served. Most companies made adjustments to accommodate even those that suffered permanent disabilities. Employers have reported improvement in health and subsequent increased capita income due to work output with less capita loss from sick leaves

Human resource is an important asset in economic development to any country. The clients could not contribution to the economic growth of the country while still sick. Recovery of these clients to the level of them resuming employment (formal or business), did impact positively to the economy of the nation.

The project has strengthened the organization and USAID relationship due to the performance in project implementation. It has raised the organizations profile in disaster management, and its credibility to the clients served, and service providers.

Clients viewed AMREF as a mother, and felt like a family. The program also provided a forum for them to meet and share during the journey to healing, and five years down the line they can now say "we are victors"; and ready to offer peer counseling and support to other hurting victims of disasters. During the fifth bomb blast anniversary they visited the Athi river fire victims and patients at the Spinal injury hospital.

6 Challenges

1. The project was preceded by a disaster, meaning that the need was at hand, and could not wait for the project to develop systems, neither could we tell clients to wait, as they needed medical care then. Planning was based on the information from the screening done to determine the need of reconstructive surgery. They myriad of injuries and posttraumatic illnesses that clients presented with were totally unpredictable. The project had to keep reviewing its strategies, and incorporate partners as the need arose, especially during the first year of project implementation.

2. After the tragedy, survivors and families and the victims received tremendous support both from the local and international communities, both in kind and in momentary value. This did assist many at the time of most need, but also planted a seed of dependency in many if not all beneficiaries. Was the money (Njonjo fund) given at the right time, in the right format? Remains the question. How much did the Njonjo fund improve their lives? In our opinion, the fund did more harm in terms of physical and psychological recovery, then good. It did cause animosity among a number of family members, in addition of creating a form of dependency neurosis among the beneficiaries - a scenario that exists five years after the tragedy. The animosity was extended to the implementers of the USAID humanitarian assistance, where the survivors and victims felt that the money was there's and therefore should be used as each of them desired. At one meeting with implementers and the beneficiaries, one man said, "We agree that you should care for us, but give each of as some cash money, then use the rest".

3. Cost sharing was received with a lot of hostility, but mainly among those that were trying to take advantage of free medical care. Never the less, those that felt the benefit of the project accepted it easily, and embraced it. Waiver systems were

developed for deserving cases. Human dignity does not allow many people to 'beg'. So monitoring was put in place to ensure those who could not afford, but kept their dignity did not lose out on the project.

4. Monitoring for set policies and systems was a major challenge during implementation of the project. In a bid to ensure efficiency and easy movement for clients, the project issued identity cards, which were signed by specific persons and laminated in the office. This enabled clients to collect medication or go for services at designated pharmacies, and other health facilities. Two months after introduction for this system, the project unearthed a fraud involving some clients, where false identity cards with forged signatures were confiscated. To avert a similar occurrence, a new system was set, where, after consultation with doctors, clients were required to come to AMREF, the prescribed medication was recorded in individual clients files, and authorization given for collection at a contracted pharmacy housed within AMREF. This also applied to authorization for services rendered such as investigations. This was a tedious process for clients, but strict monitoring had to be ensured, and clients only went for services that they needed, as opposed to convenience.

5. Peer counseling proved to be a strong method of psychological recovery. The project wished to facilitate forums (through the client's initiatives), where they could meet with the objective of counseling, and helping each other. This was difficult due to the mistrust within the members, and focus on momentary gains. By the time the project was ending, five different group had been formed, with no concrete membership or focus, but each one seeking compensation, and fighting the other groups. The project managed to get the groups together during the fifth bomb blast anniversary, but that was only short lived due to the animosity among them. This is certainly unfortunate, as the project would have loved to leave behind a solid group, where members felt some sense of ownership and togetherness.

6. Counseling is still a very new phenomenon in Kenya and many clients still associate counseling with insanity and are therefore unable to come

for counseling . Some did not keep their appointments and only came back for counseling when their conditions had deteriorated and required psychiatric care. Due to this denial, there could still be clients who are suffering from PTSD outside there.



Juliana enjoys a cup of tea during a workshop

7 Lessons Learnt

1. Education proved to be a major tool towards recovery, as clients learn about their ailments and how to manage them, hence reduce anxiety. This was evident by the reduced active client base, reduced number of medication taken by each client, how clients took interest in the care and management of their illnesses and the improved self esteem and confidence demonstrated. Though a series of three education workshops were conducted, they should have started soon after the project implementation began.
2. The project treated the first one and a half years as an emergency phase of the project, and offered free medication, the dependency syndrome demonstrated proved that the cost sharing should have been started immediately the project started, even if by a very negligible amount. This would have inculcated a sense of responsibility from both the client and the family, right from the start, and make it easy to phase out, as well as reduce or prevent the dependency syndrome.
3. Networking is very crucial when different organizations governed by different policies and management techniques, serve a similar clientele and have the same goal. Frequent deliberate moves such as regular meetings, workshops, and other forms of communication must be put in place to ensure efficiency and effectiveness of project implementation as one activity impacts on other, since they are being done for the same person. The donor certainly has a role to play here, in facilitating and ensuring the cohesion.
4. Project staffs are constantly traumatized as they work with traumatized clients, who have great demands. Care of caregivers was a measure that should have been a major project activity, as it has implications on continued quality care rendered to the clients.
5. Support group therapy and peer counseling are very effective, psychological

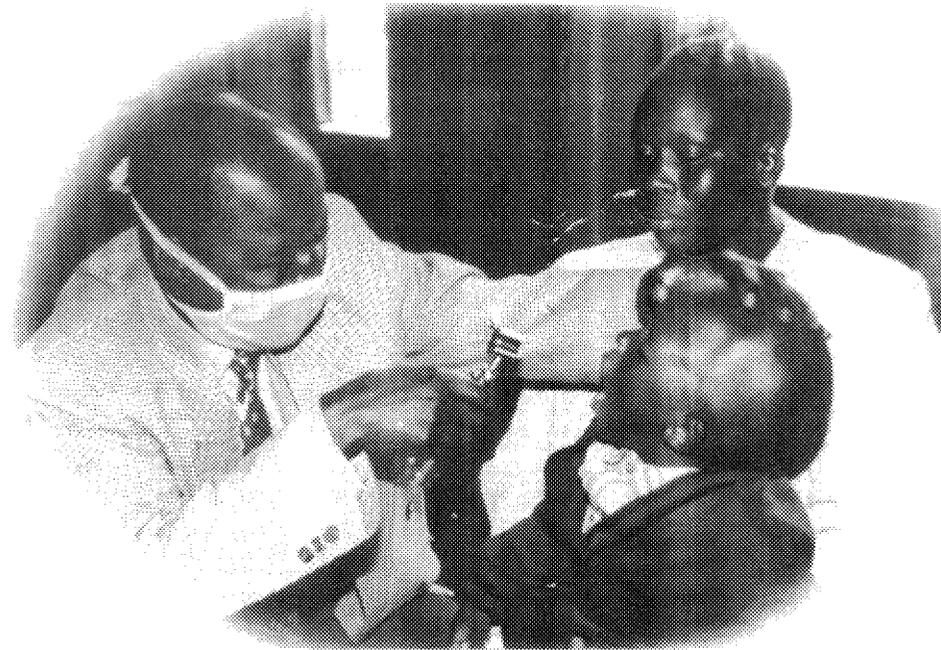
care tools, and should be started at the beginning of project implementation.

6. Families and employers should be included in care of clients from the beginning. This would promote understanding on the effects of the tragedy on the clients, and expected change and how to support them on the journey of recovery. Children of the survivors should also be included, as they too get traumatized.

7. Communications to victims of disasters on services available to them and their families should be intensified especially during the initial stages, using the media and outreach services.

8 Recommendations

1. Rehabilitation activities should be coordinated by one organization, which ensures implementation, through a network of existing specialties.
2. Impact on the holistic approach rehabilitation from this project should be replicated to the benefit of other victims of disasters
3. Research findings on the monograph should be used to improve disaster management strategies.



Dr Masinde examines master Ryan as his mother looks on

ANNEX ONE: OVERSEAS TREATMENT

NO	AMREF NO	NAME	CONDITION	COUNTRY AND YEAR
1.	126	Nancy Kilonzo	Ophthalmology	Germany 1999
2.	081	Julie Ogoye	Ophthalmology	Germany 1999
3.	195	Johnson Owour Afieno	Ophthalmology	Germany 1999
4.	316	Argwings Kodhek	Ophthalmology	Germany 1999
5.	494	Ernest Likami	Ophthalmology	Germany 1999
6.	481	Harun Thuita Gichuhi	Ophthalmology	Germany 1999
7.	715	Steven Macharia Kimaru	Ophthalmology	Germany 1999
8.	001	Grace Kiuna	Ophthalmology	Germany 1999
9.	148	James Njoroge Kiarie	Ophthalmology	Germany 1999
10.	181	Gladys Andisi	Ophthalmology	Germany 1999
11.	168	Paul Okello	Ophthalmology	Germany 1999
12.	1119	Stanley Mutuma	Ophthalmology	Britain 1999, 2000, 2002
13.	395	Henry Kimatu	Ophthalmology	Germany 2001
14.	014	Diana Mutisya	Neurological(spinal operation)	South Africa 2000
15.	146	Faith Mwirigi	Middle ear operation	Netherlands 2001
16.	321	David Peter Maina Njogu	Reconstructivesurgery	U.S.A 2001

ANNEX TWO: PROSTHESIS ISSUED

No	Name	Amref No	Prosthesis
1	Rebecca W. Chumia	165	eye
2	Unintonze Joseline	991	eye
3	Francis Gitu	376	eye
4	Charity Mathenge	369	eye
5	Grace Kiuna	001	eye
6	Julie Ogoye	081	eye
7	James Nduati Mwarangu	735	eye
8	Simon Kavisi	193	eye
9	Catherine Bwire	206	eye
10	Lucy M. Onyango	198	eye
11	Gladys Andisi	181	eye
12	Joseph K. Tek	624	eye
13	Paul M. Mwangi	326	eye
14	Peter K. Mwaura	315	Lower limb
15	Peter N. Kangonga	963	Lower limb

Annex Three

Hearing Aid issued

No	Name	Amref No	Age	Type of hearing aid & ear
1	Joseph Chege	415	47	C19+ left & right
2	Victoria Adema	412	31	C19+ left & right
3	Anastasia Kyengo	158	24	P 38 left
4	Charles Magati	200	23	C19+ right
5	Jane Kamau	527	34	C9+ left & right
6	Charles Muriu	320	32	C19+ left
7	Joel Siele	239	43	P38 right
8	Steven Nyakwara	970	67	P38 left
9	Julius Kariuki	095	34	P38 left **3
10	Rosephine Nzambi	253	24	* C19+ left & right
11	Joe Nyaga	703	56	C19+ left
12	Evanson Kibunja	457	43	C19+ right
14	Joseph Gacheru	1153	53	C19+ left & right
15	Rose Sanya	135	43	C19+ right
16	Zainabu Kadada	300	42	P 38 right
17	Esther Mugo	508	30	P 38 left
18	Faith Mwirigi	146	37	C19 right
19	John Okango	1165	50	C19+ right
20	Patrick Seki	1181	56	C19+ left
21	Peter Kangethe	006	30	C9+ left & right
22	John N.Kariuki	307	40	C9+ left & right
22	Onesmus K. Ndeti	340	47	C 19+ left & right
23	Michael N. Kariuki	1222	53	C 9+ left & right
24	Rose W. Kariuki	029	34	C 19+ left & right
25	Lillian Ruto	147	38	C 19 + left & right
26	Richard K. Malel	1010	50	C 19 + left
27	Thaddeus M. Nyaga	1203	46	C19+ left & right
28	Hellen Adhiambo	273	38	C19+ left & right
29	Zipporah Rangila	237	52	C19+ right
30	Victoria Buyu	337	56	C9+ left & right
31	Phillip M. Wambua	996	52	C19+left & right
32	Bayana Nsubuga	028	61	C19+ left & right
33	Dominic Nabea	416	36	C19+ left & right
33	Margaret Kidiga	160	58	C19+ left & right
34	Meshack Nyakundi	1052	49	C19+ left & right
35	Njoroge Muirari	1013	54	P 38 left & right
36	Purity M. Nduati	828	38	C19+ left & right
37	Kennedy Buluku	775	29	P38 left
38	Mary M. Kivuwa	591	42	C19+ left & right
39	Stelle Kawira	243	24	C19 left
40	Joyce Mueni Kanyele	346	61	C19+ left & right
41	Stanley M. Karena	592	28	P38 left
42	Richard M. Kahiga	965	48	C19 +leftP38 left & right
43	Yomo Esimbaseb	1172	54	C19+ left & right
44	Zakayo M Masyuko	833	68	C19+ left & right
45	Lydia N. Nzomo	874	48	C9+ left & right
46	Paul Koinange	471	50	C19+ left & right
47	Esther Kaswii	022	26	C9+ right
48	Eric Wainaina	824	27	P38 left & right
49	David Osano	1255	28	C19+ left & right
50	Ogla J. Misoi	745	33	C9+ left & right
51	Hellen A.Oyugi	1355	28	C9+ left
52	Francis Warui	427	48	C19 Left
53	Margaret Ndungu	577	51	C9+ left & right
54	Eunice N. Otara	234	37	C9+ left
55	Florence W. Kamau	465	48	C9+ left & right

List of service providers for the Medical assistance Project

Dental

- Dr. Njino
- Dr. Molesey Owino
- SDA Health Services - Better Living center

Pharmacy

- Metropolitan Pharmacy
- Eros Pharmacy
- Batin Peak Pharmaceuticals
- Solai Pharmacy
- Lyntons Pharmacy
- Highfied Pharmacy

Laboratory

- Omicron Clinical Laboratories
- AMREF Laboratory

Radiology

- Plaza X-ray Services -
- Reinsurance Plaza
- Nginyo Towers
- Nairobi Hospital
- MRI Centre

Reconstructive surgeons

- Dr. Meshack On'guti
- Dr. Aref
- Prof. W. Guthua
- Dr. B. M. Githae
- Dr P. Wanyoike

Orthopedic surgeons

- Dr. Museve
- Mr. Joab Bodo

- Dr. Hagembe
- Dr. Calisto Odongo
- Prof. J. O. Atinga

Physicians

- Dr. Said Omar
- Dr. Achiya
- Dr. David Muhindi

Ophthalmology

- Dr. Marina Gondi - The late
- Dr. Patrick Thuku Nyaga
- Dr. Mrs Choksey
- Dr. Owen
- M. Joshi
- F. Othero

Neuro Surgeons

- Dr. Patrick Akuku
- Dr. Mubashir Qureshi

Gynecologists/urology

- Dr. Gichuru Kamau
- Dr. Mungai Ngugi

Pediatrician

- Dr. (Mrs.) Florence Nantulya
- Dr. Mpata

ENT

- Mr. Ototo
- Dr. Masinde
- Dr. Kioni

General surgeon

- Dr. Richard Baraza

Dermatology

- Dr. Waweru
- Dr. Kola

Psychiatry

- Prof. Ndetei
- Dr. Owiti
- Dr. Mutiso

Hospitals

- Nairobi Hospital
- Getrudes GC Hospital
- Aga Khan Hospital
- Kikuyu Hospital
- Mater Hospital
- Kenyatta National Hospital
- M. P. Shah Hospital
- Avenue Hospital
- SDA Health Services
- Equator Nursing Home
- Olive Tree Hospital
- Nairobi West Hospital

Physiotherapy

- Kenyatta National Hospital
- Association for the Physically Disabled of Kenya (APDK)
- Nairobi Hospital
- M. P. Shah Hospital
- Physical Therapy

Joseph Chege Kamau
P. O. Box 74252
00200
Nairobi.

9-5-02.

Dear AMREF,

Thank you very much for the assistance I have received from you since your program commenced. I have come a long way from where you picked me from the services of Kenyatta National Hospital. Your program has done a lot towards my recovery through medications and counseling.

I thank you for the various workshops that I have attended and which have enlightened me and have given me courageous living without which I would still be thinking of my sickness alone.

I thank you for making it possible for me to have an eye operation, which would have been financially hard for me to do.

AMREF through your medication assistance since 1999 you have really done a lot by making sure that we got all the medicines we were supposed to take. May God bless your good work and prolong your work. May God bless all the AMREF staff involved in making us the survivors as most comfortable as possible. I will never forget your services AMREF. I will always pray for all of you that God will also bless the work of your organization always in any future disaster.

MAY GOD BLESS YOU ALL AT AMREF

AND

HELP YOU IN YOUR FUTURE UNDERTAKINGS.

AMREF NO 415.

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AMREF Medical Assistance Program project staff

- Susan Mwangi
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- Naomi Mwangi
- Alex Ndirangu
- John Ngumi
- George Ongayo
- Salim Sisei

Staff dedication, commitment and individualized care for survivors were a great contribution to the success of the project.

To all family members of survivors for care and support during the rehabilitation period. To all employers for support and understanding during time of less productive hours and more attention. This contributed to the recovery of survivors and integration into the society.

A special tribute to the late Dr (Mrs) Marina Gondi for her tireless efforts and motherly care to bomb survivors during and after the tragedy.

*Written and compiled by Susan Mwangi
Design and Layout: Anastasia Mutisya, Communications Unit*



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