

Final Report

Emergency Humanitarian Nutrition and Health Response for Vulnerable Children in the Gaza Strip



September 16th 2010 through October 31st 2011

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List of Abbreviations

CBC	Complete Blood Count
D	Darraj Clinic
DCA	DanChurch Aid
EHN	Emergency Humanitarian Nutrition
FAO	Food and Agriculture Organization
GS	Gaza Strip
Ht	Height
IDA	Iron Deficiency Anaemia
MOH	Ministry of Health
MOSA	Ministry of Social Affairs
NECC	Near East Council of Churches
NGOs	Non Governmental Organizations
NIS	New Israeli Shekels
Q	Quarter
R	Rafah Clinic
S	Shijaia Clinic
SD	Standard Deviation
UNICEF	The United Nations Children's Fund
UNRWA	United Nations for Refugees Work Agency
WFP	World Food Program
WHO	World Health Organization
Wt	Weight

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Executive Summary

As a response to the emergency situation in the Gaza Strip, and building on the successful experience of the last two projects implemented in Shijaia and Darraj areas, thankfully DCA supported the implementation of another one year humanitarian emergency nutrition project in the three localities served by the NECC. The project aimed at decreasing the prevalence of malnutrition and anaemia among children under 5 years old and to speed up the recovery process of malnourished and anaemic children in a sustainable manner. The project utilized a comprehensive approach that incorporates carrying out house to house screening in Rafah area, identifying anaemic and malnourished cases, initiating treatment on spot, managing the identified cases at the NECC clinics, providing health education and counselling, provision of referral services when needed, provision of iron and enriched milk supplementation and possibly provision of social assistance through other agencies working in that field. For cases which were screened earlier in the last two projects, NECC teams called all children under 5 years old and assessed them again and included the diseased ones in the treatment program as mentioned above.

Although the political situation hasn't significantly improved since the start of the project late in 2010, almost, it achieved all its intended goals in a timely manner. The preparations, coordination and the rigorous planning made the project implementation effective and efficient. The project teams were timely hired and trained on using the developed field manuals, work processes and related equipment and tools. To facilitate monitoring and tracking, a set of indicators with anticipated targets and detailed action work plan were developed. Also, the previously prepared (in the previous projects) computerized database has been further developed. The developed database constituted an important element in the project success as it facilitated the follow up of cases at the operational level. Two health education brochures were printed (one about anaemia and another about malnutrition) and 60,000 copies were produced and distributed during the house to house field visits and also during health education sessions at the NECC clinics and the community based organizations.

Regarding the project implementation in Rafah, within the project life span, and in accordance with the project plans, all the households in the targeted areas were visited (28 neighbourhoods). The number of households visited by the community workers is 8058 households with 45186 beneficiaries (target was 40,000). The number of children screened during the project in Rafah is 7914 (target 6000-7000) representing 17.5% of the entire surveyed population.

The revealed prevalence of anaemia in this project (combined) in Rafah is 25.7%; slightly less than the prevalence of anaemia in the previous projects. Among those who were anaemic, 63.7% were mildly anaemic and 36.1% were moderately anaemic. Of the total surveyed children in Rafah, 11.4% were suffering from any kind of malnutrition which is higher than the figure reported in the previous projects. Out of them, 78.5% were suffering from moderate malnutrition and 21.5% were suffering from severe malnutrition as described below.

Around one third of the children admitted in Rafah Clinic are still enrolled in the program and are presenting to the clinics regularly according to their appointments; others were discharged after full recovery. Efforts to bring defaulters including contacting them via phone calls twice and then conducting an additional home visit were successful in bringing the majority of them back to the program. In total, since the beginning of the project, 275 cases were discharged from Rafah Clinic after complete recovery and after receiving the 3 months prophylactic treatment. It is anticipated that the number of cases discharged will be duplicated in future.

Of those who were anaemic and admitted in the program for less than 60 days at Rafah Clinic, 22.5% had completely recovered and 12.1% improved. The recovery rate has increased by time as it reached 56.9% at 61-90 days and 70.7% at more than 90 days. The number of anaemic cases which had deteriorated, despite of the treatment provided, for more than 90 days was only 20 cases (3%). Using the project indicator language for anaemia management, 97% of cases were recovered, improved and/or prevented from further deterioration. The mean period for complete recovery was 93 days and the median was 87 days with a standard deviation of 35 days. This is much optimistic than project goal to reach 50% improvement within 3 months.

Similarly, 62.3% of the wasted children admitted to Rafah Clinic had recovered within 2 months since their diagnosis. Additionally, 85.3% of them recovered within a period between 60 to 120 days and 87.2% recovered after 120 days. Regarding underweight, 39.5% were recovered and returned to normal within two months and 2.3% were improved. With staying longer in the program, the recovery rate increased from 59.5% at 60-120 days to 64.8% at more than 120 days. Only 6 cases with underweight were deteriorated after staying more than four months. Regarding stunting which reflects chronic malnutrition, it takes longer time to recover. At less than two months interval, around 40% were either recovered or improved and 58.1% remained the same and prevented from further deterioration. At 60-120 days of staying in the program, 45% of the stunted cases were either recovered or improved. The target to reach 50% improvement is far exceeded in a reasonable time by more than 95%.

The median time for malnutrition cases to recover was as follows; wasting, 53 days; underweight 59 days and stunting, 99 days).

Regarding the follow up activities in Darraj and Shijaia areas, our teams called the cases under five case by case and families were given appointments and their children were assessed. Those who found normal were encouraged to join the well baby program, meanwhile those discovered as anaemic or malnourished were enrolled in treatment program. The intension is to support the well baby services and to ensure that continuity of care is maintained.

At the start of the project, all data collected about the children screened in the field during the period 2008 till 2010 were analyzed and compared with the initial reading done at this project in the first visit after calling them. The findings were very encouraging as among those who were found normal in the field at the screening (in the previous project), the percentage of those remained normal was around 99% in reference to underweight and wasting implying that children probability of keeping good anthropometric measurements is extremely high. Regarding stunting (chronic malnutrition), 90-95% of those who didn't have stunting in the field during the screening still normal and don't have it now (after two years). Findings about anaemia (84-87%) are also encouraging although it is less malnutrition. Also, those were anaemic and/or malnourished in the field and received treatment at our clinics and then discharged (after recovery); the majority of them had maintained normal anthropometrics and haemoglobin level.

During the project life, 13254 children were assessed at the well baby service delivery points at Shijaia and Darraj Clinics. Among them, 7735 were new cases and the rest were from those already receiving services at the well baby clinics. 2662 had joined the well baby program after graduation from the previous two projects therefore there was no need to call them as they are already available. After calling/visiting them, 5056 children came to the well baby services and had been assessed. 12290 from those who were screened in the previous projects were grown up and became older than 5 years therefore not included (target is the children below 5 years). In total, 23,090 well baby follow up visits were performed to the attendants of the well baby services in addition to 22,756 visits to those who were found diseased in order to receive follow up.

Among those visiting the well baby for follow up, 14.8% were discovered as suffering from malnutrition in Darraj area and 21.7% among the attendants in Shijaia area. Regarding anaemia, around 34.6% of children visiting the well baby clinic in Darraj area were suffering from anaemia while, the percentage was 29.7% in Shijaia area.

The recovery rate among anaemic children was high in Darraj and Shijaia areas as it was around 70% within 60-90 days. The recovery rate increased to around 79% at more than 90 days. Similarly, the recovery rate from malnutrition was also high. Regarding underweight at 60-120 days of stay in the program 60% of cases were recovered. Regarding wasting the recovery rate was much higher and reached between 66-81% at the same period. Regarding stunting which takes longer time for recovery, 42-66.5% of cases recovered at the same period.

During home visits in Rafah, health education instructions were provided to 17366 caregivers accompanied by the distribution of two brochures about anaemia, malnutrition, healthy practices and sanitation. In addition, 333 focused health education sessions were provided to specifically targeted caregivers of anaemic and malnourished children (12116 attendants). In total, since the beginning of the project, 29916 persons were directly benefited from health education activities. Our teams had implementing pre test post test assessment to recognize the change induced by our health education activities on knowledge, attitudes and practices of the audiences. Pre post tests findings indicate a significant increase after receiving health education.

In total, 29218 bottles of iron were provided to anaemic children at the three localities and 22989 cans/packages of enriched therapeutic milk were provided to malnourished children above 6 months of age. Additionally therapeutic food (Plumpy nut) was provided to malnourished children (12138 sachets). The total number of laboratory tests conducted in the field and at the three NECC health centers in this project is 28028 tests.

This unique project addressed the problem of anaemia and malnutrition not only by discovering the undiscovered cases, as most projects do, but by providing effective management and follow up for the identified cases. The success of this project could be attributed to many factors including the appropriateness of project design, comprehensiveness of the intervention which addresses the multi-dimensional aspects of malnutrition incorporating; identification of cases, provision of treatment, providing health education and individual counselling, appropriate follow up and referral services. The use of the electronic data base was also very helpful not only for monitoring purposes but also for the follow up of cases and for organizing the work at the operational level. It was impossible to keep tracking of cases without the availability of database. More importantly, the success of the project was highly attributed to the management of the NECC which maintained high commitment, close supportive supervision with reflective and experiential learning orientation. In conclusion, primary health care based nutrition interventions are successful to compact the effect of anaemia and malnutrition that could be used in analogous cultures. Until the

development of effective surveillance system, house to house screening is essential to discover malnourished/anaemic cases. Carrying out repetitive assessments alone is unlikely to solve the malnutrition related problems. Rather, implementing appropriate interventions with rigorous follow up measures are more likely to produce the intended outcomes.

Background and project justification

Since the year 2006, the psychosocial and physical well-being of the Palestinians particularly children and their caregivers in the Gaza Strip is continuously under severe strain, mainly due to the prevailing contextual factors resulting from the Israeli occupation, political conflict, siege imposed on Gaza and its associated features manifested in poverty, unemployment, lack of basic requirements such as food, fuel, electricity and so on. The combination of economic and social collapse, and the inability of official services to treat the symptoms of the crisis, has exacerbated the deterioration of the health status of the population in Gaza with children and women being the mostly affected. Many of the primary health care achievements that have been achieved in the last years are now at risk. For instance, infant mortality rate at least didn't improve, prevalence of anaemia, infections and malnutrition are dramatically increased to unprecedented levels affecting both the macro and micro level nutritional deficiencies as detailed later.

Results from nutrition assessments which were conducted in Gaza indicate a worrying increase in the number of malnourished cases particularly among children and pregnant women in the last years. The prevalence of moderate and severe stunting (chronic malnutrition) among children under 5 years old has increased; five to seven times more than what is considered as acceptable by the WHO in a normally nourished population constituting a public health problem. With a constantly increasing trend, iron deficiency anaemia is reported to affect nearly half of children under five years of age in the Gaza Strip. With slight variations among studies, there is a consistency in the literature that anaemia represents a chronic major public health problem in Gaza Strip.

Congruent with that, the prevalence of malnutrition and anaemia at the Near East Council of Churches' (NECC) health centres in the operational areas has increased which necessitated a response from the NECC with support from the DanChurch Aid (DCA). Whilst severely malnourished children are referred for in-patient care at specialized facilities run by other agencies, the growing number of moderately malnourished and anaemic children is not being adequately treated. For example, the average time for regaining their normal weight for age and height is approximately 10 months, and in some cases is longer. For children in the crucial years just after breast feeding, malnourishment during this crucial period will lead to irreversible developmental deficiencies for the rest of their lives.

It is worth pointing that reasons of anaemia and malnutrition are multi-factorial including; lack of food at the household level due to many reasons such as the political situation, the collapse of the economy, eating patterns and habits, cooking practices, lack of awareness and the presence of other diseases particularly infections. Current approaches to malnutrition and anaemia focus on identifying and addressing medical conditions, providing supplementations and educating mothers about proper early childhood nutrition. However, still in the Gaza Strip, the management of malnutrition and anaemia still requires empowerment

particularly the issue of follow up and proper treatment according to the international standards.

The previously implemented emergency nutrition projects in the last two years were consisting of identifying malnourished and anaemic cases and providing them with standardized treatment had succeeded in improving children anthropometric measurements and raising the haemoglobin level among anaemic children in a timely manner. The project which has been implemented in Shijaia area, April 2008 through August 2009, has screened more than 14,000 children and provided treatment to more than 6000 anaemic and/or malnourished. Around 90% of them were recovered, improved or at least prevented from further deterioration. Through the first year project, more than 80,000 beneficiaries were reached and the majority of them received health education. The project implemented in Darraj area during the year 2009 through 2010 was aiming to screen around 12500 children and to identify the anaemic and the malnourished one. The project achieved its results in terms of meeting the goals and produced results similar to what has been achieved in Shijaia area. The first two projects didn't cover Rafah area; the third area covered by NECC health program. It is worth mentioning that Rafah is highly vulnerable because it is subject to recurrent incursions and destruction of houses and agriculture industry. Additionally, although NECC has formulated a modest sustainability plan to maintain the achievement made, by the implemented nutrition projects, the lack of resources constituted a barrier to implement a rigorous follow up of cases in order to maintain and promote their nutritional status. This project focused on covering "Rafah" area, which is served by the NECC health program, plus promoting the nutrition status of the population benefited from the implemented nutrition projects in Darraj and Shijaia in the last two years through rigorous follow up of cases enrolled as well as enrolling new cases which present to NECC clinics.

The reported increasing trends of anaemia and malnutrition; the long time needed for the recovery of cases as recognized by the DCA during their visits to the NECC centres and by the NECC staff themselves, have triggered NECC management to establish emergency nutrition projects. Additionally, the achievements made in the previous two projects require sustainability measures in order to prevent the relapse of cases. NECC was engaged in a long consultations process with the Ministry of Health (MOH) which endorsed the project and provided supportive referral services. Also, Ministry of Social Affairs provided food assistance to hardship cases. UNICEF and other health providers had provided support such as referral services and medications. Finally, this project is based on needs identified by our health staff, our partner "DCA" as well as by the local community who were involved in the planning, implementation and the results of first nutrition project. There is agreement that malnutrition, particularly micronutrients deficiencies (IDA and Vitamin A), are critical in the GS, and represent serious public health problems with dramatic consequences on the affected population. The consequences of poor nutrition are tragic not only from medical perspectives but also from societal and psychosocial perspectives as well. Children with malnutrition continue to have poorer cognition, lower school achievement and more behavior problems than their

well-nourished counterparts (Abudayya, 2004; Daher, 2002; World Vision, 2009). Malnutrition limits achievement of a population's full potential and their productivity. Malnourished children show disturbed activity level, are more irritable, less attentive and less responsive to their mothers. Motor skills-inter-sensory integration and the acquisition of Piagetian milestones are delayed among malnourished younger children (MARAM, 2004a). IDA in infants and young children is associated with significantly lower scores on psychological tests and leads to long-term deficits in cognitive functioning. The World Bank estimates that the cost of preventing micronutrient deficits is around 0.03% of the Gross National Product, compared with the benefits to society in improved productivity from preventing disability and death, estimated at 5% of Gross National Product (World Bank, 2006). The cost-benefit ratio of this type of intervention is estimated to be at least 17 to 1, far exceeding any normal economic or business investment (MARAM, 2004a).

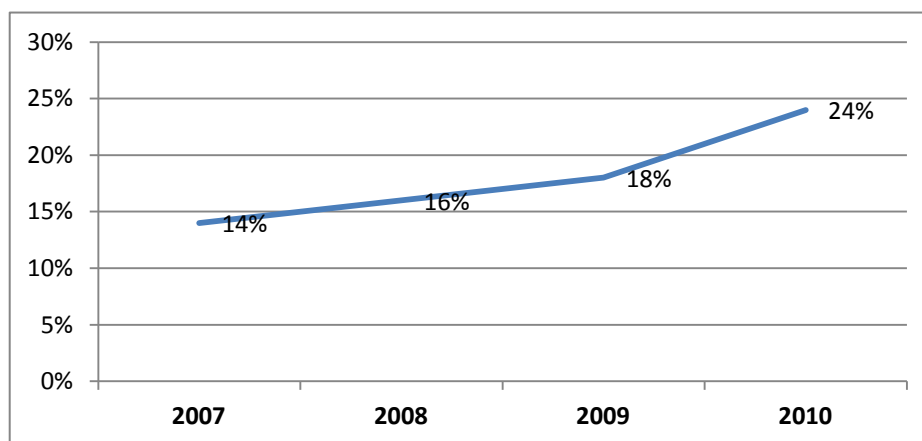
National context and problem analysis

The long periods of occupation, conflict, siege and closures have left the high densely populated Gaza Strip in a state of severe socio-economic vulnerability. The isolation of the last few years has taken the humanitarian crisis to an unprecedented level, with local people coping mechanisms exhausted, widespread absolute poverty, and an inability of civil society and formal authorities to meet even the basic needs of the population. The collapse of the economy has left little money to buy food and little food to buy. Currently, more than 80% of families in Gaza rely on humanitarian aid. Unemployment in Gaza is close to 40% and is set to rise to 50% (Palestinian Central Bureau of Statistics-PCBS, 2010). The ability of the local communities to purchase required medicaments, contribute to medical fees and pay for transport to reach health facilities is dramatically decreasing. As aforementioned, our staff in the field noticed increased rates of poverty related diseases (e.g. malnutrition and anaemia) and increased rates of sanitary related diseases (shortage of water, sewage disposable problem, garbage collections in streets, lack of detergents in the market).

As poverty and stress-related diseases and conflict-related injuries have increased, provision of basic health services has declined. A 2008 study by UK and Irish NGOs, led by Christian Aid, found that healthcare in Gaza has dramatically deteriorated on two levels: provision of health services inside Gaza and access to treatment outside Gaza. Achievements in recent years in indicators, such as the infant mortality rate and children's vaccination are being eroding. The political division between the West Bank and Gaza is also affecting the work systems, with frequent disruptions of work and diminished productivity. Generally, there is a noticeable shortage in power supply, medical equipment, drugs, disposables, maintenance services and spare parts. The proportion of patients given permits to exit Gaza for medical care decreased from 89.3% in January 2007 to 64.3% in December 2007, an unprecedented low (World Health Organisation, January 2008). WHO confirmed the deaths of many patients due to lack of access to referral services. Restrictions on movement of goods have also negatively affected the availability of drugs (see figure 1), disposables, cleansing materials and medical equipment. This combination of economic and social deterioration, and the inability of health

services to respond to the consequences, has exacerbated the already dire health status of the population of Gaza.

Figure 1: Percentage of essential drugs at zero stock level at the central drug stores at MOH (2007-2010)-WHO Report 2011

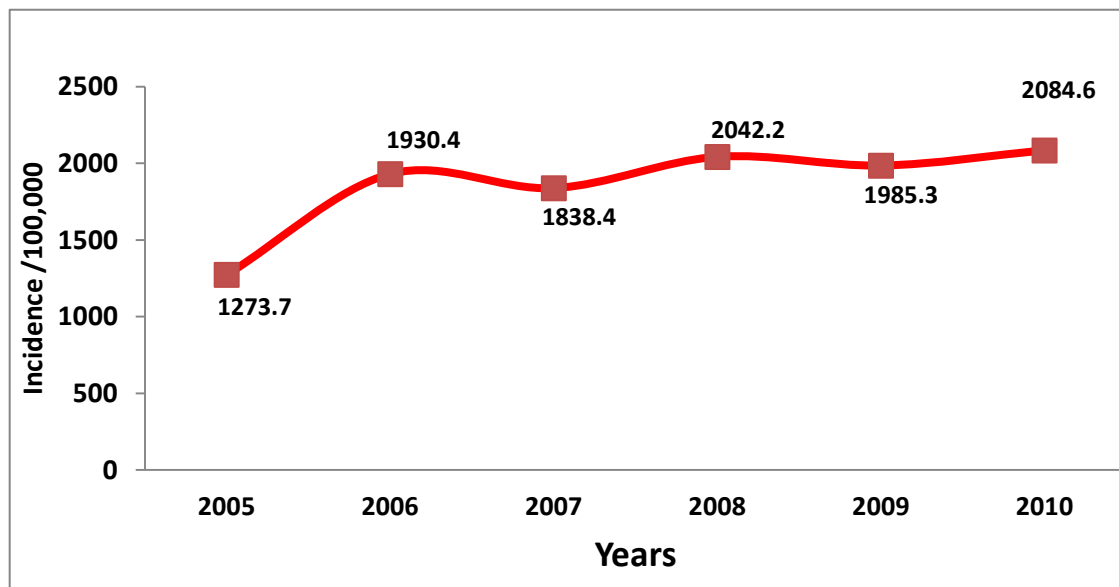


The war on Gaza (December 2008/January 2009) had further deteriorated the already grave situation. The consequences of the war had manifested itself in thousands of casualties, demolition of thousands of houses, destruction of health facilities, domestic industrial workshops, destruction of farms, uprooting of productive trees and demolition of civil institutions. Additionally, health facilities greatly experienced shortage of essential items, such as drugs, medical equipment, essential supplies, medical consumables, spare parts and sometimes fuel supply for power generators.

According to the 2007 census of the PCBS, the total Palestinian population residing in the Gaza Strip is 1,416,539 with 69% refugees (PCBS, 2007)-currently around 1,700,000. The population density in the Gaza Strip is more than 4,500 inhabitants per one square kilometre (PCBS, 2007). Due to the political and economical instability, coincided with cultural factors, the Palestinian population has one of the highest fertility rates in the region around 6, compared to 3.5 in Egypt, 3 in Lebanon, 2.4 in Israel and 3.2 in Turkey (MOH, 2006). The life expectancy for Palestinians is around 73 years. The population growth rate has been estimated at 3.8% (MOH, 2006). The reported average family size is 6.5 (in 2007). Moreover, age structure in the Gaza Strip is similar to that in many developing countries, where nearly half of the total population is under 15 years old (20% in UK). Dependence ratio is estimated at 1:8.5 (one working person sponsors 8.5 persons) (MOH, 2006). Should the present rate of population increase continue, the Gaza population would almost double every 15 years. This creates a desperate situation in terms of education, employment, health, slowing production growth and increasing the prevalence of poverty. The demographic characters of the Gaza population implies that there is an increasing load on the health care system which should respond not only to the current contextual challenges, but also to increasing demands for health services resulted from increased population size.

It is worth pointing that the Gaza Strip is going through what is called "epidemiological transition" where, non-communicable diseases including cancer, diabetes mellitus and cardiovascular diseases, are fast replacing the traditional enemies of infectious diseases as the leading causes of disability and premature death. Only 3.8% of all deaths were reported due to infectious diseases. Instead, the leading causes of death are chronic conditions, namely cardiac disease (21%), cerebro-vascular conditions (11%), and cancer (10%). In addition, accidents (i.e., trauma) accounted for 12.5% of deaths (19% among males). Around 30% of males' youth in Gaza are smoking. What complicates the situation more is that the Palestinian community is suffering from poverty-related diseases and illnesses, such as malnutrition, anaemia, sanitary related diseases which have been aggravated due to conditions associated with the current closure resulted in the deterioration of the sanitary conditions. WHO study showed that 30 of the examined sites of the Gaza sea are contaminated with animal and human faeces and an additional 25% sites are contaminated with animal faeces only (WHO, June 2008). Another important factor that increases the burden and the vulnerability in Gaza is the increased rates of injuries resulting from the Israeli incursions and hostilities. Additionally, buildings, schools and roads are lacking adequate safety measures.

**Figure 2: Secular Trend of Watery Diarrhoea among Age Group < 3 Years
2005-2010-UNRWA Reports**



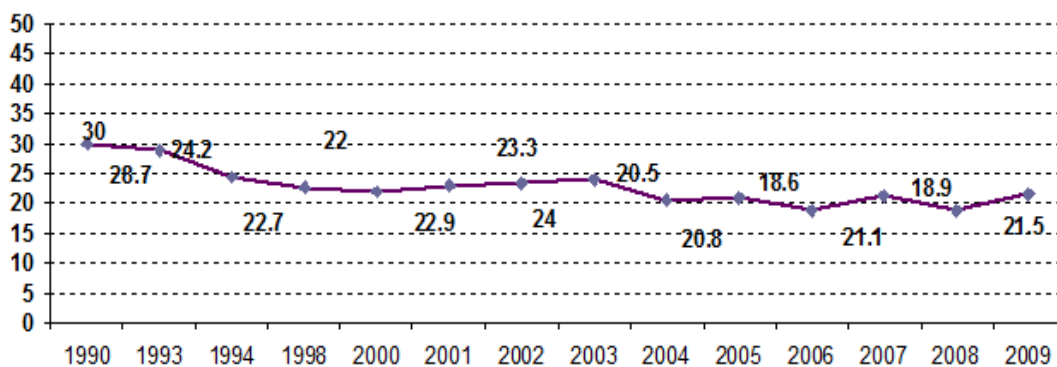
Almost all deliveries in Gaza occur in health care facilities with 19% of deliveries are by caesarean section. Almost all pregnant women receive antenatal care (ANC) but the timing and the quality of the services are still perceived as inadequate. Additionally, 30% of mothers had a post-natal visit with a specialist within six weeks after delivery. Postnatal care is still a problem both in terms of coverage as well as in terms of the quality of the provided services. Moreover, the reported maternal mortality rate is around 35 with a widely perceived assumption that it is higher than

this figure due to under reporting and misclassifications of deaths (MOH, 2010). High mortality rates reflect low quality services during ANC, natal care and/or post natal care and almost all maternal deaths are universally avoidable.

The prevalence of contraceptive use is around 43% with the Intrauterine Device being the commonly used method followed by the oral contraceptive pills. Family planning usually starts late and only it is considered by families after having 4-5 children in average. Anaemia among pregnant women is very high (reaches above 70%). Around 95% of mothers breastfeed their babies but continuation and exclusivity is a problem (Hanan Project, 2005). Only around 26% of children are exclusively breastfed for six months. The median duration for breast feeding is 10 months. There is consensus that mothers' knowledge about danger signs in general is low. This is applicable to danger signs during pregnancy, delivery and postnatal period. Also, this is applicable to child and neonatal illness. This calls for supporting health promotion and health education efforts.

The infant mortality rate (IMR) is estimated at 20-25 per 1000 live births, (62 in Turkey, 50 in Egypt, 40 in Tunisia, 21 in Jordan and 7 in Israel). Disease-specific programs have substantially succeeded in reducing the IMR in the last three decades, but the trend of this improvement has now declined. In fact, it appears to have increased again since 1997. Deaths among young children, particularly at the neonatal period, remain unacceptable for a country with reasonable availability of health care providers and a relatively high amount of spending on health (9% of the GDP according to the World Bank documents). Most infant deaths are neonatal deaths and most neonatal deaths (first 28 days of life) are early neonatal deaths (first week of life) mainly resulted from prematurity related conditions, respiratory conditions, sepsis, congenital anomalies and others. Peri-natal and neonatal deaths were most often due to illnesses associated with mothers' complications of pregnancy and labour and delivery such as bad quality ANC, unsafe delivery, congenital anomalies, premature labour, un-hygienic conditions, sepsis, and lack of standardized supportive technology and practices. An additional possible explanation is the deterioration in the maternity services, with over- saturation of delivery wards leading to release of mothers too soon in the post-partum phase and lack of specific programs targeting neonatal and peri-natal period.

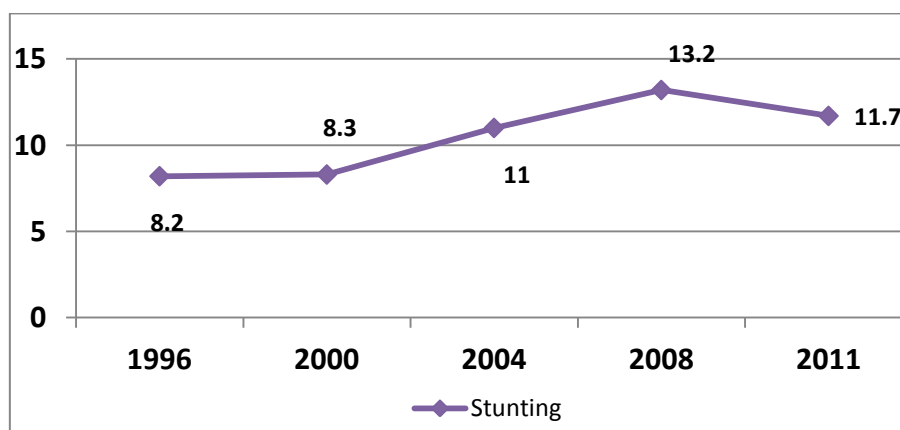
Figure 3: Infant mortality rate in GS from 1990 -2009



Acute respiratory infections are the third leading causes for infant deaths in Palestine. The available information indicates that 13.1% of the infant deaths are caused by pneumonia and other respiratory infections (MOH 2005). Diarrheal diseases are important causes of the morbidity in infants and children in Gaza. However, recent reports indicate that only 0.6% of total infant deaths are due to diarrheal diseases (MoH, 2006). Additionally, the leading causes of death of children 1-4 years are; accidents (23.6%), congenital malformations (14.7%), ARI (10.6%), other infectious diseases (10.1%), malignant neoplasm (5.4%) and cerebral palsy (4.6%). The infant mortality rate is regarded as an index which reflects the overall performance of the health system. Because many of the IMR associated conditions are containable, it is important to focus on decreasing the IMR and to set programs in this regard. Interventions need to consider the life cycle approach and also to consider designing interventions at both health facility and community levels. Supporting neonatal care units associated with delivery wards and focusing on sepsis control could be examples of interventions that might produce significant achievements.

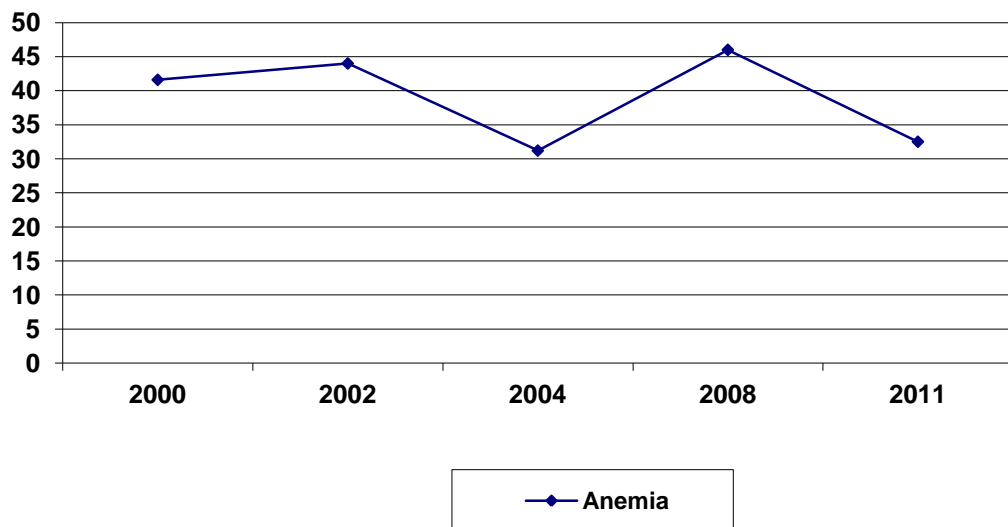
According to the PCBS reports, children under 5 years old constitutes around 18% of the entire population with a death rate of around 28-31 (child mortality rate). Almost all Gaza children are fully immunized with the basic vaccines designated by the MOH. Results from nutrition assessments indicate a worrying increase in the number of malnourished cases particularly among children and pregnant women in the last years. As aforementioned, the prevalence of moderate and severe stunting (chronic malnutrition) among children under 5 years old ranges from 10-15%; five to seven times more than what is considered as acceptable by the WHO in a normally nourished population constituting a public health problem. With a constantly increasing trend, iron deficiency anaemia is reported to affect nearly half of children under five years of age in the Gaza Strip.

Figure 4: Change in stunting prevalence as estimated by different studies



With slight variations among studies, there is a consistency in the literature that anaemia represents a chronic major public health problem in Gaza Strip. Anaemia among pregnant women is very high and reaches around 70%. Other serious micronutrient deficiencies such as Vitamin A represent a public health problem as well with more than 75% of children are either suffering from Vitamin A deficiency or at the border level. Additionally, the prevalence of Vitamin D deficiency associated with rickets is rapidly increasing. The same applies to Zink and Iodine although not adequately investigated.

Figure 5: Change in anaemia prevalence as reported by research reports



There is a consensus that malnutrition is mainly attributed to lack of food security, poverty and difficult hardship conditions. Many of the families with malnourished members are newly added to the category of poor due to the current conditions. Another important element contributing to nutritional deficiency is the social and demographic characteristics of the Gaza population. Research reports and participants responses indicate that family size, crowded households, low education level of mother, low income and unemployment are important risk factors for nutritional disorders. Families with member/s suffering from psychosocial disorders, families with psychosocial problems, children of divorced mother, orphans and children living away from their mothers are more exposed for the development of nutrition disorder than others. Additionally, sanitation, water supply, maternal health indicators such as parity status, feeding practices, social practices and eating habits, parasitic infestations and the number of meals consumed daily are all found to be affecting malnutrition. Moreover, nutritional reports indicate that malnutrition is more prominent in rural



marginalized areas and in areas subjected to frequent Israeli incursions. Interestingly, both females and males are affected by nutritional disorders but most recent studies showed that males are more affected.

There was broad consensus in the literature that food insecurity in the Gaza Strip is chronic and increasingly widespread affecting more 75% of population. World Food Program reports indicate that real food consumption per capita has fallen by 25-30% since the 'intifada' began. A third of the Palestinians have reported a fall in income the last year, the poor suffered most heavily with a 40% drop. Noticeably, food insecurity affects more non-refugees, rural areas, marginalized areas and areas suffered from incursions and destruction of assets. Without doubt, the main reason for food insecurity in Gaza is political. Concisely, the rapidly increasing prices of food, the declining productivity of the agricultural sector and the collapse of domestic industries in the Gaza Strip as a result of the Israeli measures all led to reducing the food security level.

The nutritional related problems constitute a major public health problem that requires urgent interventions. The consequences of anaemia are dramatic as it causes irreversible brain damage if not treated immediately. Although anaemia and malnutrition are chronic public health problems in Gaza which has been recently exacerbated, its management is still problematic and most likely not effective. Efforts aiming to reduce nutrition related illnesses should consider the multi-factorial nature of the issue. Interventions in this regard should be designed at both; community level and health facility level.



The proposed project is a practical and effective response to both chronic and the newly emerged nutrition problems in Gaza. The lack of effective alternative health services in these targeted areas will be met by direct provision through the three NECC clinics. The focus of the project fits within the overall nutrition strategy of the MOH, targeting vulnerable children. Services offered by the project are based on national and international approved standards and guidelines, ensuring the health needs of the beneficiaries are fully met. The proposed intervention fits the overarching goal of contributing to the Millennium Development Goals (goal 4) to reduce child mortality. Also, nutrition is one of the important sectors in the ASPHERE minimal standards. The proposed project is in line with the priorities outlined in the consolidated appeal for Gaza coordinated by the United Nations. Providing nutrition related interventions are essential component of the appeal and DCA and NECC were acknowledged in the document to contribute to providing humanitarian nutrition services. Finally, yet importantly, the proposed

interventions will not only focus on enrolling the children from Rafah into the nutrition program (new beneficiaries), but also will promote the nutrition status of the children in Darraj and Shijaia who were benefited from the services offered in the previously implemented projects plus enrolling new beneficiaries from these two areas. It should be noted that the cross cutting issue of gender is central to this project, which provides services to both sexes and raises the level of awareness among women and empowers them.

Project description

Overall objective

“Contributing to the reduction of children mortality and morbidity through reducing the prevalence of malnutrition and anaemia among children under 5 in the targeted areas”

Objectives

- To identify and appropriately treat the moderately and severely malnourished and anaemic children living in Rafah, Shijaia and Al- Darraj family health centers' catchment areas.
- To increase awareness of caregivers'/women living in the NECC three health centers' catchment's areas about healthy nutritional and appropriate sanitary practices.
- To promote/sustain the nutritional status of children living in Darraj and Shijaia; the two areas which had benefited from the previously implemented two emergency nutrition projects in the last two years.

Key indicators

- Percentage of malnourished and anaemic children below 5 prevented from increasing further or reduced compared to start of project data.
- Percentage of anaemic and malnourished returned to normal within the recommended recovery period
- Number of caregivers in the catchment areas who received nutrition counselling and health education and appropriately practicing.

Outputs

- 7000 children living in Rafah area are screened for malnutrition and anaemia through house to house screening.
- 600 children in Rafah area are identified as malnourished and treated according to the causative factors including food supplements and formula, de-worming, referral services as needed and counseling according to individual needs.

- 3000 children in Rafah area will be identified as anaemic and treated with appropriate iron supplementations, counselling, referral services, deworming and so on according to individual needs.
- 12,000 children living in Shijaia and Darraj received continued nutritional services contributing to promoting their nutritional status.
- 190,000 community members exposed to hygiene and other measures to sustain reproductive and family health.
- 30 health workers at NECCs clinics trained on the state of the art practices in nutrition

Target population

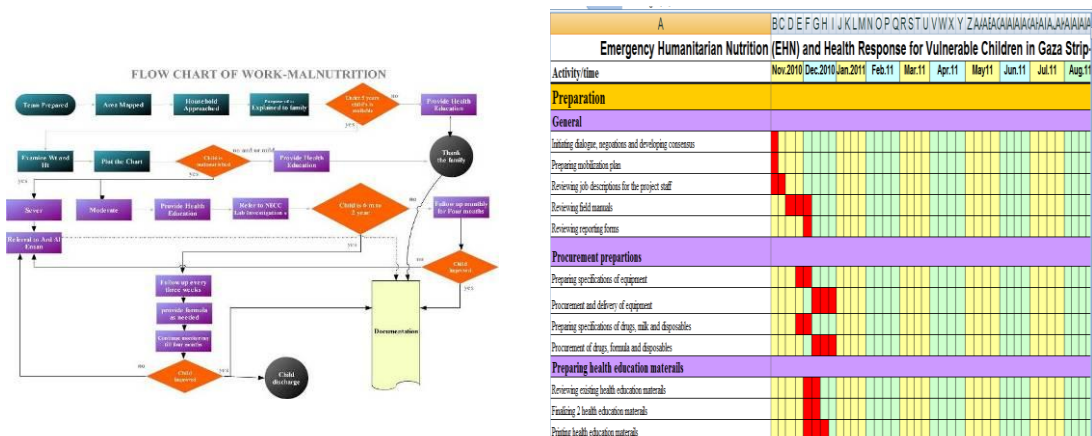
The primary target of the project is children below the age of 5 who are malnourished and/or anaemic. It is expected that some of the malnourished children are also anaemic. Yet, as the prevalence of anaemia in Gaza is very high (around half of children are anaemic), the project expects to recognize anaemic children who are underweight as well as with normal weight.

In Rafah (new area to be screened), it is expected that around 3000 will be found anaemic and around 600 will be found malnourished out of the total 7000 children who will be primarily screened. The area in Rafah to be targeted contains around 40,000 residents. It is anticipated that the beneficiaries will be almost equally distributed between males and females. Children diagnosed to be malnourished and anaemic or 'just' anaemic will be treated according to their diagnosis and individual needs. In addition, in the previously enrolled two areas, in the last two projects, 28,000 children were living in these areas among them; 12,000 were anaemic and 2,200 were malnourished will receive nutritional services aiming to promote their nutritional status including carrying out screening, follow up, revisits when needed, providing treatment to the malnourished and anaemic cases and continued treatment. In total, 35,000 children will receive services providing by this project; those actually represent around 12.6% of the total under five children in the Gaza Strip. The later indicator has been modified to 20,000 in coordination with the DCA.

The secondary target of the project is the 40,000 community members living in Rafah area, plus 70,000 community members in Darraj area and more than 80,000 in Shajia Gaza. In total, 190,000 community members will be exposed to health education messages about food, nutrition and hygiene to sustain public health representing around 13% of the Gaza Strip population. Beneficiaries are vulnerable populations who are subject to chronic harsh situations and suffered from poverty, closure and siege and lack access to appropriate nutrition services and information. Around 25% of the populations are refugees plus displaced population who lost homes due to the continued conflict. Both males and females will be targeted without any kind of discrimination in relation to gender, political affiliation, citizenship status and so on. The beneficiaries will be served at the health facilities and/or at the community during house to house screening and home visits.

In addition 30 persons from the NECC nurses, doctors, community workers, laboratory technicians, pharmacists and their assistants, will benefit from upgrading of skills in the various technical and managerial areas pertaining to nutrition. Collaborating organizations such as MOH, NGOs, community-based organizations will also benefit through interactions with the project (spell over effect).

Project strategy and methodology



Rafah area (new area)

Through house to house screening, the project identified and treated malnourished and anaemic cases in Rafah area in Gaza. Depending on the causes of malnutrition and its severity, most cases were treated and recovered within the timeframe of the project. The management plan is in line with the standardized nutrition protocols.

Darraj and Shajaia (previously enrolled areas)

Because the previously implemented projects had included conducting house to house screening for all the children in these two areas, focus in this project will be directed on monitoring the previously enrolled cases, continuing the treatment of the already identified cases, screening new cases at the well baby clinic, and providing treatment to the relapsing cases. Interventions at these two areas will be carried out mainly at the NECC well baby clinics for those who regularly receive this service. For those who don't regularly visit the well baby services, another program will be implemented including contacting them, visiting them and monitor the progress of cases.

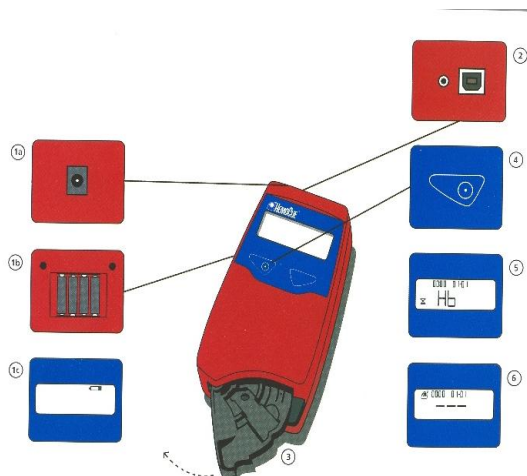
All areas

For all the children, referral services for complicated and non-responsive cases will be provided. Through coordination with other agencies, food security for vulnerable families will be supported. Health education and counselling will be provided to help families to develop healthy eating practices and develop healthy practices in dealing with malnutrition and anaemia including appropriate eating

practices, proper hygienic measures and seeking medical advice as needed from the NECC health facilities.

A strategy to follow up defaulters was devised consisting of carrying out phone calls and then home visits. Finally, the project helped to develop the capacity of the NECC to identify and manage the moderately and severe anaemic and malnourished cases at its health program.

Regarding instrumentations, the HemoCue system has been used in this project to examine haemoglobin level which consists of a battery operated photometer and disposable cuvette coated with dried chemical (Sodium Azide) which also serves as a blood collection device. This one step blood collection that uses a cuvette but does not require wet reagents makes this system uniquely suited for rapid field work. Also, it is easy to train non-laboratory personnel to operate the device, and it is not dependent on electricity. In addition to the operational features, laboratory evaluation using standard methods found the HemoCue system to have satisfactory accuracy and precision. Long term field experience has also shown the instrument to be stable and durable.



Regarding weight and height, standardized Seca scales were used. Portable Digital Scales for babies and children up to five years with LCD display and Detachable tray-convert to a stand by removing the tray were used for measuring weight. Also, the used scale is comfortable and equipped with securely fitted weighing tray to keep baby safely in place. It is characterized by high accuracy rate, high sensitivity less than 10-50 grams easily calibrated and verified. The experience showed the validity and suitability of these scales in the field.

Finally, the project will help to further develop the capacity of the NECC to identify and manage the moderately and severe anaemic and malnourished cases. The NECC will build on the success of this project and will develop sustainable appropriate practices. It is expected that some malnourished cases will require a longer therapeutic regime and longer follow up and supplements than the 12 months envisaged as the duration of this project.

As a part of the NECC strategies, beneficiaries are included in the planning, implementation and evaluation of interventions. The project support human rights to health and nutrition providing that meanwhile respecting beneficiaries' opinions and values. Health education and counselling also empowers community ability to support the provision of nutrition services. As

stated in the ASPHERE, although it is an emergency intervention, its strategies fits long term interventions and are on line with the national strategies and standards.

Timeframe

The project officially started on September 16th 2010. However, the NECC were notified almost 6 weeks after the official start of the project. To finalize some issues regarding monitoring with the DCA, the hiring of the staff was delayed till reaching an agreement. The consultant and the staff deployed from the NECC were hired one month earlier (November 1st 2010) to perform the needed preparations. Preparations for the implementation started immediately after the notification (November 2010) including the preparation for procurements, mapping, planning, and designing the project related processes. However, field teams were hired on December 15th 2010; training of the project staff had been implemented within the first week of their work (mid December 2010). To compensate the un-expected delay at the start of the project, NECC requested no-cost extension and DCA approved extending the project till the end of October 2011.

Field work officially started on December 2010 accompanied by initiating treatment on the spot. There was no need to conduct piloting as all the field workers were trained and worked in the previous projects implemented before.

House to house screening in Rafah was completed in September 2011, and field workers were deployed to assist in bringing defaulters to the program. Calling cases and conducting the needed assessment continued till the official end of the project. The program of intervention will continue using the same standardized approach which the project utilized. Children targeted will enjoy the rigorous well baby care program provided at the NECC clinics.

Preparations

Immediately after receiving the approval notification from the DCA, the NECC team implemented the previously developed induction plan in order to guide the project operations. The developed plan efficiently guided the implementation. The work was very intense during the project life starting by timely completing the needed preparations, procuring the items needed, hiring and training the project teams, conducting the field work and starting managing malnourished and anaemic cases at the clinic. Although, the political situation wasn't smooth during the project life span, the NECC management succeeded to overcome all the challenges that faced the project in relation to maintaining adequate supplies of drugs, milk, medical consumables, partially overcoming the frequent electricity cuts through small generators. Fortunately, the NECC was successful in achieving almost all the project targets particularly the identification of anaemic and malnourished cases and treating them with appropriate measures resulting in a timely recovery of high percentage of cases to normal.

Key achievements

The following paragraphs summarize the key achievements made during the preparatory stage;

1-Recruitment of project staff



The field teams were hired, and started work on December 15th 2010. Although the project has been signed earlier (September 16th 2010 according to MOU), to finalize some issues regarding monitoring with the DCA, the hiring of the staff was delayed till reaching final agreement. The Technical Consultant and the staff deployed from the NECC were hired one month earlier (November 1st 2010) to perform the needed preparations. In total,

8 community workers, 2 doctors, three team leaders, three nurses, three lab technicians, three assistant pharmacists, one data entry person, IT support person, a secretary, a logistic person, an accountant and two drivers were deployed to work in the project (either full time or part time). 4 community workers were allocated in Rafah area; two in El-Daraj and the remaining two in Shijaia area. Physicians, nurses and paramedical staff were distributed according to work requirements. Back up support and supervision were provided by the local consultant, the Medical Coordinator and the Executive Director of the NECC. It is worth mentioning that most of the project staff had worked previously in the nutrition projects which were implemented in the last two years.

Guided by a detailed plan, the staff received a five day orientation course about the new project, project activities, strategies and the operation field manuals as detailed later. The experience gained in the previous projects was reviewed and lessons learned were identified. Issues such as minimizing defaulters, increasing compliance with treatment and promoting the effectiveness of referral services were highlighted. Training on the use of the computerized database and on counselling skills was also provided. Detailed description of the training provided is illustrated later.

Team members received revised job descriptions and also they received training on their assigned tasks and signed contracts. The retention rate was high; only few of them left the project due to personal reasons (one delivered and one resigned). Those who left the project were immediately replaced.



2-Health education materials



Two brochures; one about anaemia and the other about malnutrition were updated and re-printed using the material which was prepared two years ago. 30,000 copies of each of the two brochures were printed and disseminated.

Dissemination of health education materials was conducted during home visits as a part of family counselling about malnutrition and anaemia. Additionally, copies were distributed at the focused health education sessions organized by the team leaders for the malnourished and anaemic cases. Adequate explanation about the content of the material was provided to the family upon receiving the health education materials.

3-Procurement of equipment, disposables, milk and drugs

After finalizing the specifications of the requested equipment, procurement took place efficiently. The NECC used the equipment that are available at the organization. All the needed equipment were made available. NECC renovated a convenient place at Rafah clinic including installing partitions, doors and windows to maintain privacy and to adjust the place for providing care. Some procurement of equipment were made according to the project budget and included;

- 6 Weight scales
- 2 Height measurement scales
- 2 Hemocues
- 3 Laptops
- 1 Desk top computer

The early initiation of the procurement process; ensured its efficient delivery.

- Regarding disposables, based on the estimation made, adequate quantities of disposables were procured and delivered to NECC warehouse.
- Regarding milk, after determining the needed amounts, procurement of milk formula and medications took place according to the international procurement guidelines.
- Substantial amounts of iron and milk were procured and efforts to secure additional donations were done. Thankfully, DCA agreed to secure additional amount of drugs and formula to treat sick children.
- However, NECC maintained adequate strategic stock to cope with any shortages of drugs in the local market.

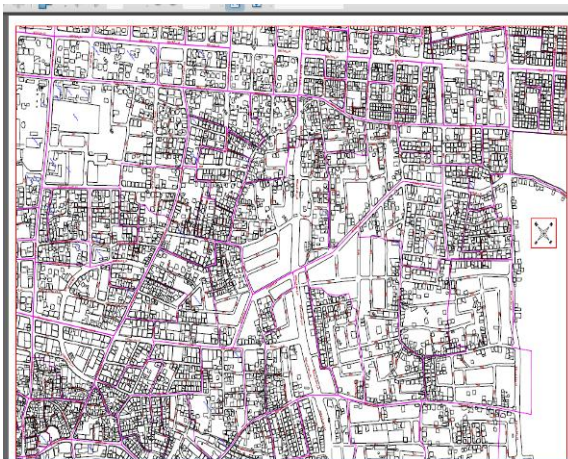


4. Mapping

A map of Rafah area has been obtained from Rafah Municipality. Additional layers of information such as number of households and number of inhabitants were installed on the map based on the request of NECC. The NECC teams visited the area to validate the mapping on the ground and divided the area to smaller 30 blocks. For each block, boundaries were identified with obvious marks. The project teams had visited the different blocks before starting the households' visits. Additionally, the

number of household units, number of population and the number of children were calculated. Later in the project, two blocks were dropped because they have been located far away from the NECC clinics and new two neighbourhoods with larger number of populations were included and or merged with the already defined areas. The final number of neighbourhoods included in the project was 28 ones; but contained larger number of populations.

Each visited area is marked on a map at the notice board of the clinic and the team leader proactively monitors the field visited with regular checking and carrying out revisits to some houses.



In Darraj and Shijaia there was no need to do mapping as the area already mapped and the focus was on providing follow up for cases they were included in the program. The database enabled the NECC teams to contact the enrolled children through telephone calls and/or home visits.

5. Design of work

Clear work processes flow charts were developed; one for anaemia and the other for malnutrition. Additionally, another flow chart for the follow up project in Darraj and Shijaia were performed. Field guidelines and checklists were revised, updated, piloted and finalized. Logistic arrangements were finalized and repeatedly field tested. Reporting requirements and forms were revised and finalized. During the implementation of the project, few changes were introduced into the design of the project as follows;

- One indicator has been changed in



agreement with the DCA where the number of children served has been reduced to 20,000

- Slight modifications of the neighbourhoods took place as aforementioned
- Milk dispensing has been extended with the donation of milk from ANERA
- Examination of haemoglobin electrophoresis has been widely introduced.

Annual action plan with clear time frame is designed and shared with the staff.

6. Training of NECC and the project teams

A training plan has been developed and implemented during the period December 15th through December 19th 2010. The total days of the implemented training were 5 days. Additional four training days were provided later based on emerged needs in the remaining period of the project. The training included the project implementation team and focused on different managerial and technical issues in nutrition assessment and interventions.

7. Project monitoring

Generally, NECC enjoys effective and rigours monitoring system that has many facets including;

- Monitoring outcomes of the services provided by the organization
- Monitoring inputs and processes and linking that to the outcomes
- Monitoring management and administrative related processes
- Monitoring clients perspectives and the degree of clients centeredness of services

To perform the monitoring function effectively, NECC uses many monitoring tools including;

- Designing Performance Management Plan (PMP) focusing on outcomes
- Regular supervisory visits
- Effective reporting system
- Computerized database
- Regular meetings with staff and community
- Monitoring clients perspectives through questionnaires
- Monitoring staff performance through administering supervisory checklists
- Conducting pre test post test measurements
- Reviewing records and conducting audit
- Clear action plan (Gantt chart)

In this project, monitoring was rigorously implemented at the NECC by the senior management (Executive Director)-at least once weekly. Also, the Medical Coordinator and the Technical Consultant regularly perform monitoring function (twice weekly). The supervisors in charge of the units/clinics are also conducting regular monitoring activities on daily basis. The available electronic database facilitates the monitoring process including the final outcomes of our work. Through

a mixture of methods such as reporting, field visits, records check, meetings with beneficiaries and staff, the NECC management maintained close monitoring of its activities. Using indicators, the NECC management maintained a reflective approach and immediately intervened where needed. Also, donors perform a monitoring role through visits, reporting and through their local field teams. The impact of monitoring is obvious and it attributes to achieving the results we are obtaining. Clients' feedback is systematically monitored and usually show positive attitudes as the satisfaction assessments reveal that over 90% of clients are satisfied. The constantly increasing number of beneficiaries indicates positive attitudes from clients and their adherence to treatment plan reflects positive perceptions.

Precisely, based on the project concept paper, the project logical frame and the action plan, performance monitoring plan has been developed. 20 indicators (previously 16 indicators were used in the last 2 years) were developed with clear definitions, defined responsibilities and time frame for data collection and reporting requirements. To facilitate data management and monitoring, the earlier developed database; has been revised and modified. Now, the database is crucial to the smooth operation of the project on ongoing basis.



8. Baseline data

Jointly, with the clinics teams, and based on the project developed monitoring plan, baseline information were extracted from the database in reference to;

- Percentage of the anaemic children presenting to the three centres
- Percentage of the malnourished children presenting to the three centres
- Percentage of children presented to the three centres with sanitary related diseases such as diarrhoea and skin diseases
- Percentage of children with anaemia who recovered and or prevented from further deterioration

- Percentage of children with malnutrition who recovered and or prevented from further deterioration
- Length interval between the diagnosis of anaemic cases till its recovery in months
- Length interval between the diagnosis of malnutrition cases till its recovery in months.

The findings of the baseline study are illustrated in the last table.

9- Coordination and integration

NECC is known as an effective player in coordination in order to maximize coordination and eliminate as much as possible duplication of services. As with the previous projects, the NECC coordinated with the relevant parties and stakeholders at different levels including:

- Officially informing the MOH about the project activities.
- Using the MOH nutrition and referral protocols and guidelines.
- Sharing the project strategies with the MOH and Ard El Enssan- a specialized NGO in nutrition.
- Agreements were reached with Ard El Enssan to refer severe cases to them as it is specialized organization in this field. Regular monthly or biweekly meetings are held between the Medical Director of Ard El Enssan and the Medical Coordinator of the NECC, treating doctors to jointly follow the progress of cases. Unfortunately, due to financial crisis, the number of cases referred to Ard El Enssan has been reduced as the organization lack resources.
- Coordination with the MOH to conduct further investigations and appropriate management of the severe cases at their hospitals is taking place. This includes carrying out cultures, advanced lab tests and specialized care even hospitalization. The MOH agreed to free of charge treat the severe cases referred from the project in the MOH premises (Al Nasser Hospital, Rantisi Hospital, Gaza European Hospital and for MOH laboratories).
- Contacting UNICEF to receive support in terms of iron supplementations (they provided milk formulas)
- Contacting ANERA to get special milk formula (around 7000 cans received).
- Coordination with the MOSA resulted in providing food rations and financial assistance to the needy families. Monthly, NECC provided the MOSA with a list of needy families who fulfilled the following criteria;
 - Having one child with anaemia and/or malnutrition
 - Household with more than 3 members
 - Monthly income is less than NIS 500
 - Not receiving regular assistance from other agencies
 - Field workers observations indicate the needs for assistance

10-Program management and control

The commitment and attention paid by the NECC senior management to the nutrition projects is constant. The Medical Committee of the NECC endorsed the program and supervised its overall implementation. The Executive Director of the NECC supervises the overall implementation of the program. The Executive Secretary at least once weekly meets the consultant and the Medical Coordinator. Additionally, quarterly, the Executive Director meets all the project teams to discuss progress and challenges.



The local consultant at least visited the field once every week and met the staff. The Medical Coordinator had visited the field at least twice a week and discussed challenges and problems with the concerned people. The team leaders had conducted validation visits to ensure that the work has been conducted as required. Daily reports were submitted by each field team to the team leaders. Team leaders submitted daily reports to the management of the project. Reports submitted were appropriately followed and measures were taken accordingly.

Coordination meetings with the administrative and technical teams at various levels were done periodically and on ongoing bases. Control measures were strictly developed and followed including;

- Standardized procedures were agreed upon, documented and followed strictly.
- Intensive training previously provided to the team which included a lot of demonstrations



- and role playing.
- The team has developed experience through the work implemented in the last two years.
- Field work reports are reviewed and checked by the team leader, the Medical Coordinator and the Consultant plus the Executive Director.
- Data entry model has built in control measures-control checks.
- Data from the field are checked, cleaned and analyzed.
- Data from the field are checked from logical perspectives.
- The team leaders re-visited houses and documented that in special forms.
- Re-measurements were done at the clinics, for all children referred for treatment.
- Data re-entry to check reliability and validity is done systematically.

11-Community acceptance

Through two meetings, the NECC management introduced the project to the community leadership and the community organizations before the start and gained their commitment, ownership and support to program. The team visited the community leaders and the community based organizations and introduced the project to them. A letter explaining the project purpose, approach and methods were distributed to the community leaders.

The field team is approaching the community in a politically appropriate way and is maintaining strict adherence to ethics and maintains family privacy.

The field work conducted in Rafah indicated that the community is high receptive to the program. Since the beginning of the project, 70 families out of 8058 houses that were visited refused to allow our team to enter their houses. The families refused had either medical staff members within the family, mothers were working and no one is available in the house and/or having other socially related issues. Our teams document cases that refuse to be involved in the program and the possible reasons for that-if known. Our teams approached these families to convince them (which refused the services) to assess their children.

The most frequently cited reasons for not accessing the children in 70 houses were;

- Families were not in the houses (mother outside the house)
- Families don't open their houses for strangers
- Families have medical staff member/s
- Families were carry out follow up with other clinics
- Families have had special circumstances.
- The number of families which did not allow our teams to have access



to; varies from one area to another and it was the highest in Darraj, followed by Rafah and Shijaia. The following reasons could contribute to these variations;

- Cultural variations across the different areas
- Socio-economic status
- Number of working mothers in the served areas
- Role of social structures such as Dewans and extended families.
- Areas reached (Expansion to new neighbourhoods)
- Availability of other services in the area (another health care provider)

However, the community acceptance was evident as manifested in compliance with the follow up visits and the adherence to the treatment guidelines which resulted in high recovery rates. A lateral effect of the program was the noticeable current increase in the beneficiaries who are benefiting from the NECC centres especially in Rafah.

Results according to the project indicators

The coming pages demonstrate the key achievements of the project in reference to the project indicators.

1- Rafah area

Beneficiaries targeted

The target of conducting house to house survey in order to screen all children under 5 years in Rafah area has been fully achieved. The idea was to reach all children under 5 years (those who attend the health centre and also those who don't attend) and to screen them all. NECC was successful in reaching all the planned beneficiaries. The two-trained field teams (four community workers), in average conducted home to home visits to around 40 houses per working day, 20 houses per each team per day. The field work was conducted in a smooth way and the visiting teams learned from their previous experience how to do the work efficiently and effectively.



One important point that has been frequently emphasized in this project was stressing on counselling regarding follow up at the clinics of the anaemic and the malnourished cases and the importance of compliance with management regime particularly iron supplementation. Additionally, the community workers were also contributed to increasing families' awareness about nutrition. Many health education sessions were provided by the community workers through as detailed later. To help in bringing back defaulters to the program, the community workers were occasionally recruited to contact those defaulters. The field teams' tasks were expanded by adding additional tasks and included the following activities;

- Visiting houses and introducing the project to families
- Collecting some demographic data
- Assessing households status to recognize the need for social assistance
- Measuring haemoglobin, Wt and Ht for all children under 5 in every household in the visited areas (haemoglobin was measured for children above 6 months of age)
- Providing iron supplementation on the field
- Providing health education
- Referring anaemic and malnourished children to the clinics
- Contributing to the follow up of defaulters cases
- Providing focused health education in non-traditional methods
- Instructing families about the needed investigations and providing cups for collecting specimens.

According to the implementation work plan which identifies the neighbourhoods to be visited according to a specified time schedule, the field team completed the 28 neighbourhoods; covering all the targeted areas (including the additional two neighbourhoods). Field teams had covered the majority of the areas during the first three quarters (26 neighbourhoods) therefore they were recruited to conduct health education sessions and to bring back defaulters.

As illustrated in the Table 1, in total, the number of households visited is 8058 with 45186 beneficiaries. The project indicator of targeting 6,000 households was met even exceeded. The majority of the visited households were headed by fathers (91.4%). The median number of household members is 5.6 persons. Around 57% of the families visited were having children under five years old (slightly less than the previous projects). The number of children screened since the beginning of the project is 7914 representing 17.5% of the entire surveyed population nearly equally distributed in reference to gender (males 52.6% and females 47.4%). This result is congruent with the Palestinian Central Bureau of Statistics which indicates that 17-18% of the population is aged between 0-5 years. The target of reaching and assessing 7000 children is fully met. This reported number of the children screened includes 591 children who were enrolled in the program after they had presented to the well baby clinic and discovered to be anaemic and/or malnourished; therefore, immediately involved in the program to initiate immediate management. Around 80% of the screened children were refugees. Regarding children age, the mean age of the children surveyed in months is 27. Children less than one year old represented 24.2%; 21.2% aged between 1-2 years; 19.1% were between 2-3 years. The proportion of children who were older (age 4 years and 5 years) was 35.5% of all the children surveyed.

Figure 6: Distribution of families visited per quarters

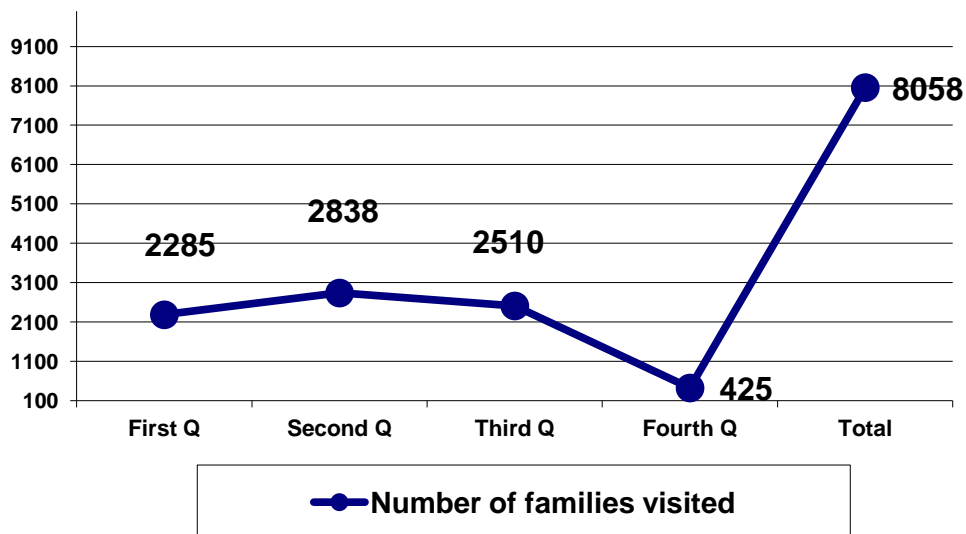
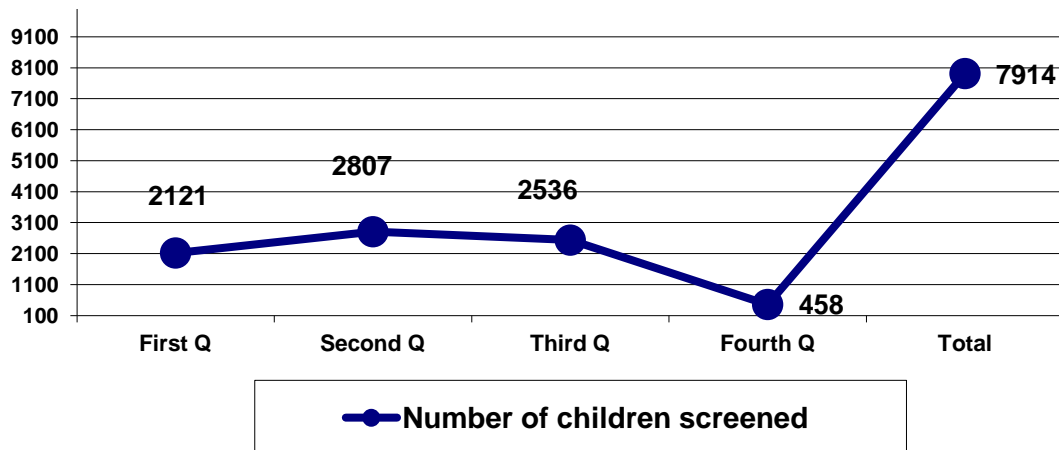


Figure 7: Distribution of children screened by quarter



Figures 7 and 8 show that the number of families and children screened was the highest in the second quarter of the project. The work in the last quarter was the least as field work was almost completed and most efforts in the last quarter had focused on treating the already enrolled cases and bringing defaulters to the program. However, the number of households residing in the visited areas and the number of residents is higher than the official figures obtained from Rafah Municipality.

Out of the total surveyed population, around two thirds had reported receiving humanitarian assistance mainly food and financial assistance particularly from the UNRWA. This figure is higher than the reported figure in Darraj and Shijaia resulted from the fact that the served people in Rafah area are mainly refugees. Refugees are entitled for receiving social assistance from UNRWA. According to the project hardship criteria, 250 families of the population visited were living in hardship conditions as observed by our community workers.



Table 1: Distribution of screened families according to certain demographic characteristics

Variable	Number	%	Notes
Number of houses visited	8058		
Total number of surveyed population	45186		
Households with children under 5 Y	4594	57%	
Total number of children surveyed	7914		17.5% of surveyed population
Sex of children			
Female	3750	47.4	
Non-Refugee	4164	52.6	
Citizenship status of children			
Refugee	6372	80.5	
Non-Refugee	1542	19.5	
Age distribution of children			
Less than 6 months	883	11.2	
6 months to one year	1030	13.0	
1-2 years	1679	21.2	
2-3 years	1513	19.1	
3-4 years	1397	17.7	
More than 4 years	1412	17.8	
Total	7914	100	
Receiving social assistance (families)			
Yes	5189	64.4	
No	2869	35.6	
Type of social assistance			
Financial	324	3.0	
Food rations	5079	63.0	

Around 55% of household reported having zero income (median 0; mean 678 NIS for the entire population surveyed). In comparison with the previous projects, no significant variations were noticed in terms of the socioeconomic status across the different areas. Possibly, the services provided by UNRWA according to its mandate serving refugees had contributed in improving the situation in Rafah.

2-Children Enrolment Status

As aforementioned, 7914 children were assessed for anthropometric measurements. Out of them, 2391 were eligible for the enrolment in the program. However, around 704 of those who were discovered are receiving treatment at a nearby health facility therefore not given appointments at NECC facilities. Because the area that has been screened is relatively geographically wide, many families especially those living in the edges decided to follow up at other clinics after their

children were discovered as malnourished/anaemic during the field visits. Finally, 1546 children (anaemic/malnourished and/or suffering from both) were given appointments and registered at the program. The majority of those children had been enrolled in the program and continue their management plans at Al Rafah Clinic. The status of those children can be summarized as detailed in the table down below.

Table 2: Distribution of the enrolled cases by their status

Category	Number	Percentage	Notes
Enrolled in the program and still under treatment	514	33.25	
Discharged due to complete recovery	415	26.84	
Didn't come to the NECC clinic- at all	11	0.71	From the field, they notified the team that they will not come
Discontinued the follow up at the NECC clinic	275	17.79	Some already carry out follow up with other providers
Moved to another residency place	19	1.23	Changed their place of residency
Referred to the well baby clinic	174	11.25	Didn't improve within the recommended period and referred to well baby services
Currently referred to another health facility	20	1.29	
Follow up with another clinic	63	4.08	After initiating treatment at NECC clinic
Found normal	17	1.1	Referred to the clinic by the field workers then at the clinic found normal
Reported as Thalasemic	4	0.26	In the field
Having congenital anomalies	20	1.29	
Died	2	0.13	
File closed due to family issues	12	0.78	
Total	1546	100	

Of the children identified as anaemic and/or malnourished who were enrolled in the program, still 33% were under treatment either receiving their therapeutic or prophylactic medications. Among the children enrolled in the program, 20 cases were still receiving treatment/investigations at other organizations. In total, 80 cases from Rafah were referred to European Gaza Hospital and to other organizations for receiving advanced investigations or treatment. NECC closely monitors the status of those who were referred. Till, the official end of the project, 415 (26.84%) were graduated; meaning that for anaemic cases their haemoglobin became normal and also they had received three prophylactic doses of iron (three months). For malnourished cases, they return to normal anthropometric measurements. Typically discharge takes place at around 4 months for

malnourished cases and around 4-6 months for anaemic cases. It is worth noting that some children were enrolled in the project in September 2011, and at least they require 6 months to be graduated. Therefore, the number of graduates will increase in the coming months. Graduates are encouraged to register at the well baby clinic in order to regularly receive growth monitoring services and the majority already were included in the well baby clinic.

The families of 19 cases changed their residency place and moved to new areas outside Rafah area. Unfortunately, 2 cases were died for reasons not directly related to malnutrition and anaemia (Meningitis and the presence of congenital anomalies).



Of the total surveyed children, the families of 63 children didn't continue follow up with the NECC due to various reasons. Some of these cases were improved and they need to continue their treatment at a closer clinic to their place of residency. Some of them are currently receiving their prophylactic doses of iron after they became normal from other facilities or they procure iron from private pharmacies (figures not documented).

For every visited and screened case, the NECC teams were able to track and recognize its status. The follow up in this project was more organized this year than the previous years. The most frequently reported reasons for not coming to NECC clinic included family issues (mostly internal family conflicts, the NECC clinic was perceived as too far from the place of residency, and follow up with other health providers. Other less reported reasons included, waiting time, mother is sick, mother forgot the appointment and children don't like the medications particularly iron.

However, the project team was active in bringing those children to the program through contacting and revisiting them. The project team made 1949 calls to the families of the malnourished and anaemic children to bring back defaulters as first and second calls. Additionally, 604 home visits were made to bring defaulters to the program. Till the time of writing this report, only 11 cases didn't come at all and 125 only delayed after they had started receiving treatment at the program implying that efforts to bring back defaulters were very successful. The tendency to discontinue treatment with the NECC and/or to initiate it at another health centre were more noticed in areas far away from the NECC clinic especially those visited in the first quarter. Calls and home visits were very effective in bringing back the majority of defaulters.

3-Anaemia status

It is worth reminding the reader that in this project, anaemia is operationally considered to be present if the Hb value is below 11 g/dL for children less than 5 years old. Anaemia is classified into three categories according to severity as described in the provided table (3).

Table 3: Classification of severity of anaemia

Adopted Classification of Severity of Anaemia (Hb, g/dL)			
Age group	Mild	Moderate	Severe
Children 0.5-4.9 years	10.0-10.9	7.0-9.9	< 7.0
Children 5.0-11.9 years	10.5-11.4	7.5-10.4	<7.5

The revealed overall mean haemoglobin level of the children surveyed was 9.8g/dl and the median was 11.1g/dl. Out of the total children examined (6-59 months-6967 children), 1792 were identified as anaemic representing 25.7% of the surveyed population. This represents significant reduction in the prevalence of anaemia in this area in comparison to Al-Shajaia area. Because UNRWA provides nutritional services to the refugees living in Rafah area, the prevalence of anaemia was lower. It is worth noting that children less than 6 months were not examined for anaemia according to the international protocols therefore not included in the reported percentages.



Among those found anaemic, 63.7% were with mild anaemia and 36.1% were with moderate anaemia and only three cases were diagnosed as severely anaemic (haemoglobin below 7).

It seems that the prevalence of anaemia decreased throughout the project life span. Figure 3 shows that the prevalence of anaemia was higher in the first and the last quarters of the project, while it was the lowest in the third quarter. This variation could be attributed to the socioeconomic and cultural characters of the visited neighbourhoods each quarter and also to the instability of the food security status which is affected by the distribution of humanitarian aid.

Table 4: Distribution of the surveyed children by anaemia and its severity

Classification	Number	Percentage
Normal	5175	74.3
Anaemic	1792	25.7
Total	6967	100.0
Classification of anaemic cases by severity		
Mild	1142	63.7
Moderate	647	36.1
Severe	3	0.2
Total	1792	100.0
Gender		
Male	930	25.4
Female	862	26.1
Refugee Status		
Refugee	1404	25.0
Non-refugee	388	28.9
Age group		
Less than one year	549	54.2
1 Y- 2 Y	643	38.9
2 Y- 3 Y	285	19.2
3 Y- 4 Y	182	13.2
4 Y- 5 Y	107	7.7
Hardship cases		
Yes	40	27.8
No	1752	25.7

Figure 8: Distribution of the prevalence of anaemia per quarter

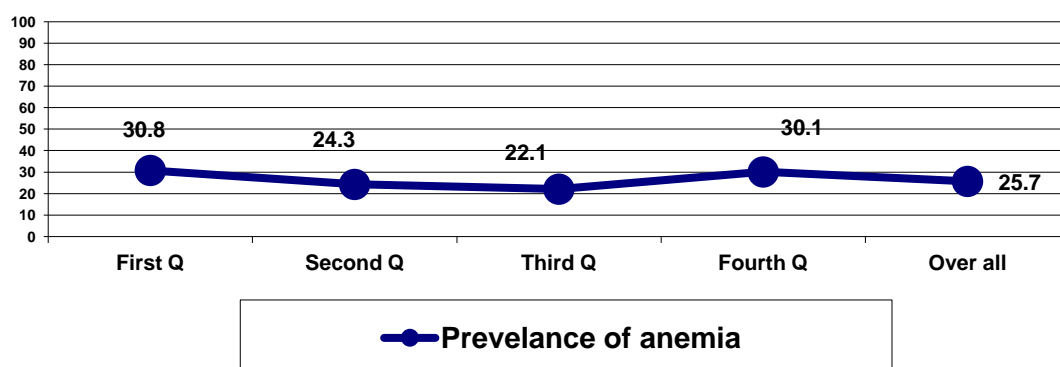
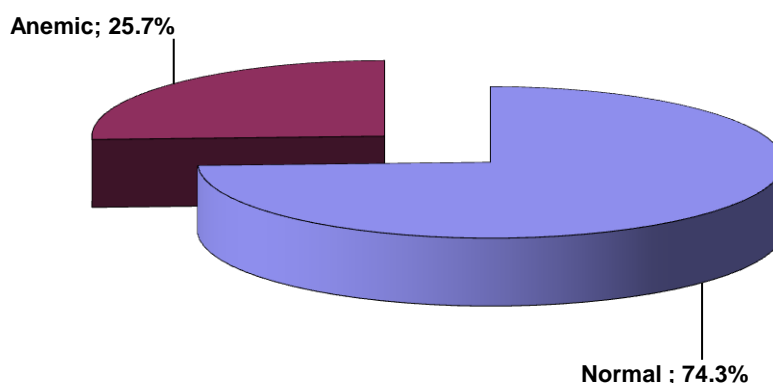
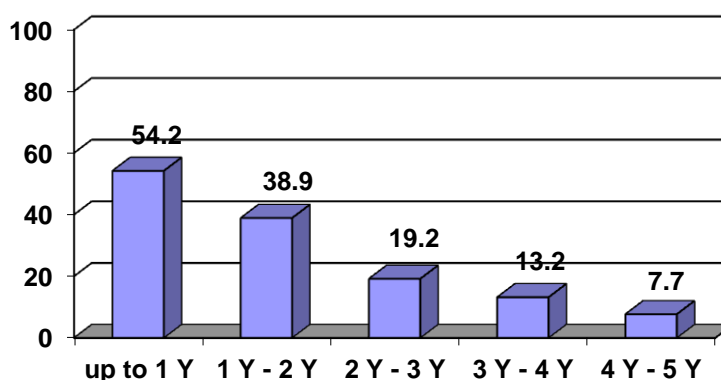


Figure 9: Classification of surveyed children by anaemia status



As shown in table 4, it seems that anaemia is affecting both males and females equally. Anaemia is higher among children aged less than one year with a prevalence of around 57% followed by children aged 1-2 years with a prevalence of 46.6% (figure 5). As the child gets older, the possibility of anaemia occurrence decreases. Anaemia affects non-refugees (31.7%) more than refugees (27.3%). Differences were noticed across the different neighbourhoods particularly the newly built areas. Cases identified as hardship/social cases according to the project criteria were having less prevalence of anaemia (27.7%) than the better off ones (30.5%).

Figure 10: Distribution of anaemia by age group



The program of treatment of anaemia adopted in the project is compliant with the national protocols and consists of providing iron supplementation for three months maximum, 3-6 mg per kg body weight per day followed by a prophylactic dose for additional three months (1-3 mg per kg per day) in order to keep adequate storage of iron. Iron supplementation is combined with ingestion of healthy food and the utilization of appropriate anaemia preventive practices.

It is worth noting that the course of treatment for anaemic children is expected to be completed within three to six months. However, some usually recover before and others may continue longer in the program and receive additional care.

Table 5: Change in the status of anaemia cases per enrolment period

Change period	Recovered		Improved		Remained the same		Deteriorated		Total
	No	%	No	%	No	%	No	%	
Less than 60 days	39	22.5	21	12.1	103	59.5	10	5.8	173
61 days-90	82	56.9	15	10.4	40	27.8	7	4.9	144
More than 91 days	471	70.7	55	8.3	120	18.0	20	3.0	666

The table (5) above indicates that progressively anaemic cases are rapidly improving. The rate of improvement increases by time as within less than 60 days, 22.5% of cases recovered and return to normal and an additional 12.1% were improved from moderate to mild anaemia. Of those who stayed between 61 to 90 days, 56.9% were recovered and 10.4% were improved. Fortunately, 70.7% of those who stayed more than three months were completely recovered and returned to normal and an additional 8.3% were improved.

As revealed from table 5, more than 90% of cases were recovered, improved, or prevented from further deterioration. Among those who stayed more than 61-90 days, only 4.9% of cases had deteriorated. At more than 90 days, the percentage of cases deteriorated was 3%. In other words, using the indicator language (indicator 4), the majority of cases were either improved, or at least didn't further deteriorate in a timely way-relatively very short period (less than 6% were deteriorated). With staying longer in the program, the percentage of those who stayed the same decreased from 59% at the less than 60 days interval to 18% at more than 90 days.

Figure 11: Change in the status of anaemia per enrolment period

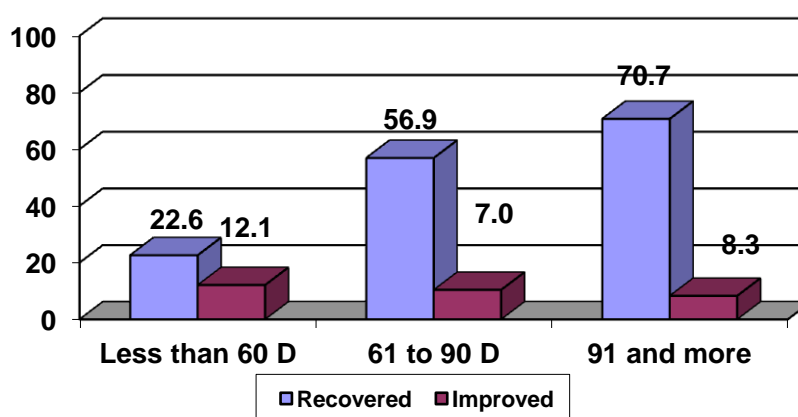
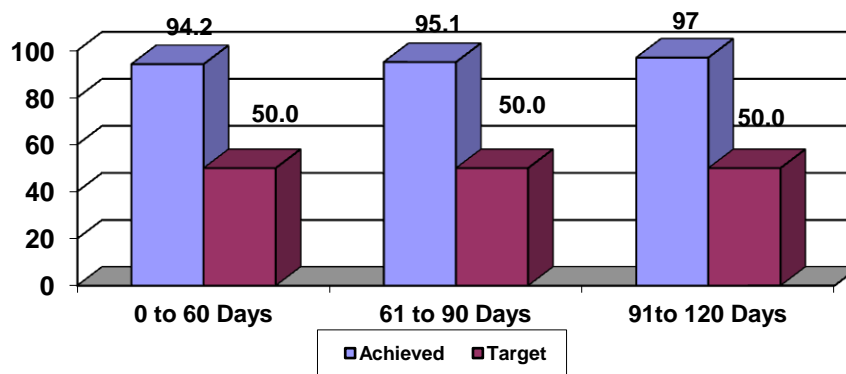


Figure 12: Comparisons between anticipated targets and actual achievements



In the figures above (11&12), the achieved percentages are much higher than the anticipated targets at the different intervals. In line with the indicator definition, the achieved figure operationally includes the percentages of those recovered, improved, and/or prevented from further deteriorated.

However, calculating the median and mean duration to recover to the normal indicated a positive signal. The mean period for improvement for the cases enrolled was 93 days, median 87 days with a standard deviation of 62 days and a mode of 35 days. This is much optimistic than our goal to reach 50% improvement at 3 months.

Although the program has been originally designed to focus on the moderate cases, it has expanded and enriched to treat severe cases. NECC introduced new lines of treatment for anaemic cases that didn't improve particularly providing focused counselling, folic acid, multi-vitamins and stressing on eating food rich diet which contributed to improving the recovery percentage. Those who didn't recover yet, are still in the program receiving continued care. Cases that were recovered also receive follow up in order to sustain the gain.

4. Malnutrition status

Malnutrition is a multi-factorial condition caused by inadequate intake or inadequate digestion of nutrients. It may result from eating an inadequate or unbalanced diet, digestive problems, or other medical conditions. In a normally nourished population only 2.28% of the population would be below -2 SD.

In this project, the cut-off of -2 Z-score is used to diagnose malnutrition. This means that the Z-score was the mean to identify the prevalence rates of acute malnutrition (underweight or weight-for-age) and wasting or weight-for-height) among children. The cut-off points for classifying different levels acute malnutrition are as following: <-1 Z-score- means mild acute malnutrition, <-2 Z-score means moderate and -3 Z-score means severe acute malnutrition. Internationally, mid malnutrition is not included in estimating the prevalence of malnutrition and the focus is on moderate and severe malnutrition.

Types of malnutrition

- Wasting is a condition measured by weight-for-height; a condition that results from the loss of both body tissue and fat, in a body; a condition that usually reflects severely inadequate food intake happening at present (acute malnutrition).
- Stunting children or low height-for-age is defined as below 2 z-score of the WHO reference value, regardless of reasons for their shortness. This index is an indicator of past under nutrition or chronic malnutrition; it cannot measure short term changes in malnutrition. Stunting is a slowing of skeletal growth that results in reduced stature or length; a condition that usually results from extended periods of inadequate food intake, especially during the years of greatest growth for children.
- Underweight is a condition measured by weight-for-age; a condition that can also act as a composite measure of stunting and wasting.

Table 6: Distribution of the surveyed children by malnutrition related factors

Classification	Number	Percentage
Normal	7013	88.6
Malnourished	901	11.4
Total	7914	100
Classification of malnutrition by severity		
Moderate	707	78.5
Severe	194	21.5
Total	901	100
Classification of malnutrition by type		
Wasting	221	2.8
Underweight	360	4.5
Stunting	665	8.4
Gender (stunting)		
Male	343	8.2
Female	322	8.6
Refugee Status (stunting)		
Refugee	576	9.0
Non refugee	89	5.8
Hardship case (stunting)		
Yes	20	11.9
No	645	8.3
Age group (stunting)		
0-6 months	49	5.5
6 month to 1 Y	82	8.0
1 Y- 2 Y	147	8.8
2 Y- 3 Y	152	10.0
3 Y- 4 Y	135	9.7
4 Y- 5 Y	98	7.0

As shown in Figure 13, among the surveyed children in this project 11.4% were suffering from any kind of malnutrition (901 out of 7914); slightly higher than the reported figure in the last two projects. Findings revealed are congruent with nationally reported figures in reference to the prevalence of malnutrition.

Out of total malnourished children, 78.5% were suffering from moderate malnutrition and 21.5% from severe malnutrition as described below (table 6). The prevalence of stunting (8.4%) was higher than the other features of malnutrition. This reflects chronic exposure to malnutrition. Wasting was the least prominent feature of malnutrition (figure 13). There were slight variations in the prevalence of malnutrition throughout the project period.

Figure 13: Distribution of surveyed children by malnutrition and its types

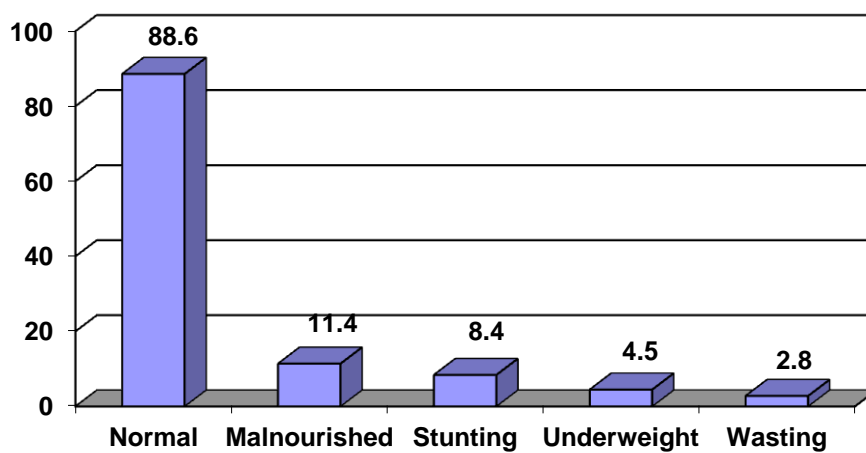


Figure 14: Distribution of the prevalence of malnutrition per quarter

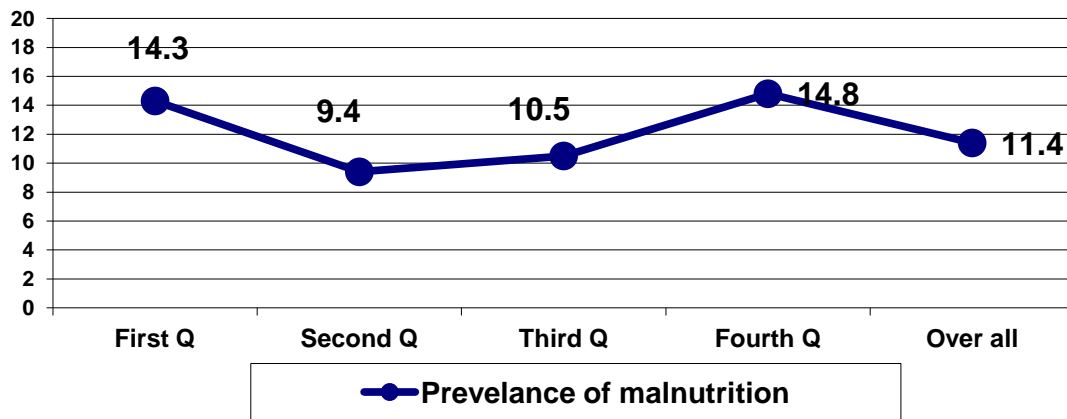
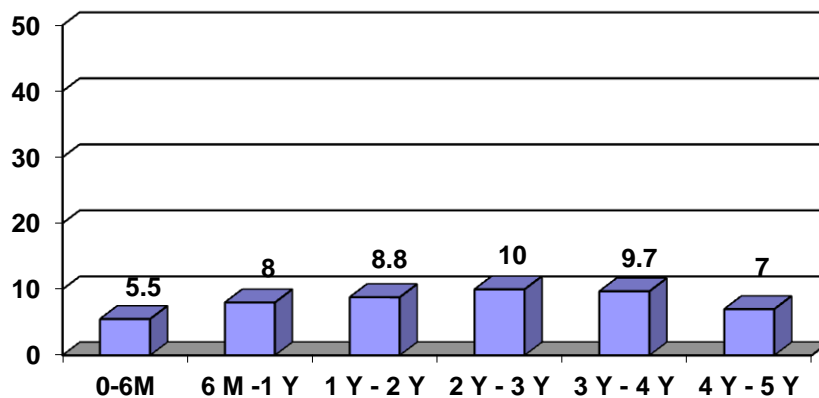


Figure 15: Distribution of malnutrition (stunting) by age group



It seems that malnutrition is affecting both males and females nearly equally with little differences between the two categories although males are slightly having lower prevalence of malnutrition. The prevalence of malnutrition is higher among children 2-3 years with a prevalence of 10% (figure 15). Malnutrition is more common among children living in large size families. Refugees are most affected by malnutrition than non-refugees. Congruently, cases identified as hardship/social cases according to the project criteria were having higher prevalence of malnutrition than the better off ones.

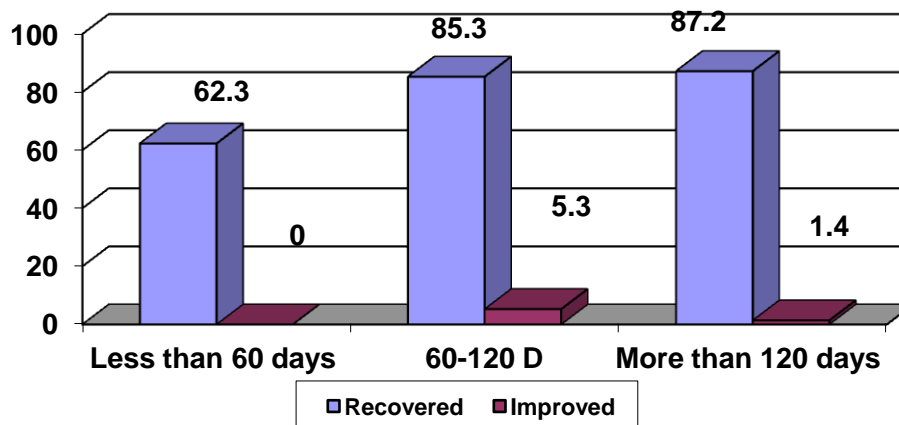
The management of malnutrition includes; conducting further lab analysis and physical examination combined with treating the underlying causes, provision of health education, follow up and providing enriched milk. Identified malnourished cases were seen monthly at the NECC clinics. Severe cases referred to Ard El Ensan and/or to Ministry of Health facilities. However, the coming table (7) shows the change in the status of children illustrated by different periods.

Table 7: Change in the status of malnourished cases admitted to the program per period of enrolment

Change period	Recovered		Improved		Remained the same		Deteriorated		Total
	No	%	No	%	No	%	No	%	
Wasting									
Less than 60 days	38	62.3	0	0.0	20	32.8	3	4.9	61
61-120 days	81	85.3	5	5.3	9	9.5	0	0.0	95
121 and more	123	87.2	2	1.4	14	9.9	2	1.4	141
Underweight									
Less than 60 days	34	39.5	2	2.3	49	57.0	1	1.2	86
61-120 days	78	59.5	10	7.6	41	31.3	2	1.5	131
121 and more	136	64.8	10	4.8	58	27.6	6	2.9	210
Stunting									
Less than 60 days	38	36.2	5	4.8	61	58.1	1	1.0	105
61-120 days	89	44.3	3	1.5	100	49.8	9	4.5	201
121 and more	161	39.4	30	7.3	208	50.9	10	2.4	409

The management of malnutrition takes in average 4 months to return to normal anthropometric measurements. The project had made excellent achievements in improving the conditions of all the types of malnourished children particularly the wasted and children with underweight. As clear from the table (7), 62% of the wasted children recovered in less than 2 months from the diagnosis. Additionally, 85% recovered within a period between 2-4 months. It is worth noting that because wasting reflects short term exposure to nutritional deficiencies; it quickly can be corrected by appropriate management. None of the stunted cases has deteriorated at 61-120 days of staying in the program.

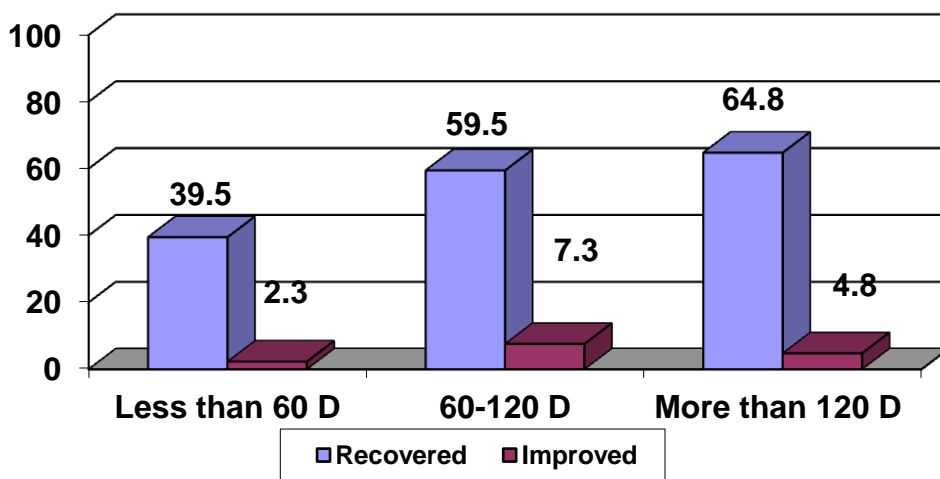
Figure 16: Change in the status of wasted children per enrolment periods



More than what was anticipated in the monitoring plan, almost 100% of children with wasting and underweight were improved, returned to normal and/or prevented from further deterioration (indicator 3).

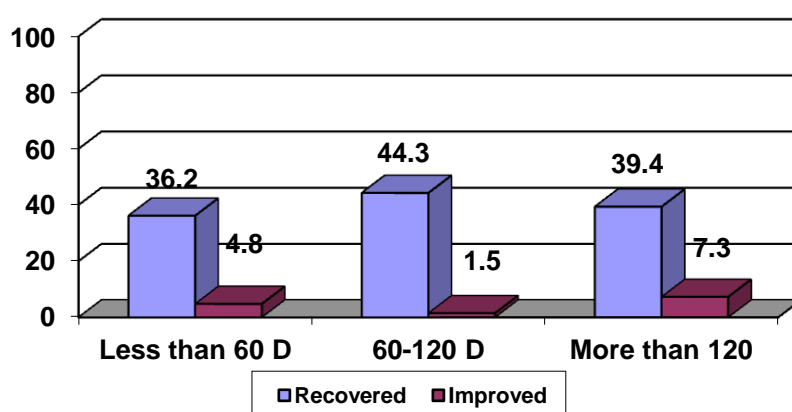
Regarding underweight as clear from the table, 59.5% were recovered and returned to normal within two to four months. Only 1.5 of the cases with underweight were deteriorated during the same period. As cases with underweight spend longer periods in the management program, the chance of their recovery and improvement increases as it was 64.8% within a period of more than 120 days. The remaining cases were either recovered or remained the same within the recommended 4 months. Only, 2.9% of the cases were deteriorated after their enrolment in the program at that time interval.

Figure 17: Change in the status of children with underweight per enrolment period



Regarding stunting which reflects chronic malnutrition, it takes longer time to recover. In less than 2 months interval, around 40% were either recovered or improved. For the same period, 58.1% remained the same and prevented from further deterioration. Only one case had deteriorated at that specified period. At 60-120 days of staying in the program, 45% were either recovered or improved and 49.8% stayed the same without further deterioration. Only 2.4% of cases deteriorated. The target to reach 50% improvement is far exceeded in a very short time (achievement more than 95%).

Figure 18: Change in the status of stunted children per enrolment period



As inferred from above, more than what was anticipated, the project made a significant progress towards decreasing the time needed for cases to recover. The aim was to decrease the average time to around 4 months. The baseline study showed that the average time for malnourished cases to recover was around 13 months. The improvement in the fate of cases reported this year was significantly higher than the achievement made in the last two projects.

Table 8: Distribution of recovered malnutrition cases by type and central tendency measurements by days

Type	Mean	Median	SD	Mode
Wasting	53	39	45	35
Underweight	59	40	51	35
Stunting	99	96	61	34

The mean time for recovery of wasting is less than two months with less median value indicating that cases recover quickly and with little variations among cases. The mean and median time for the recovery of cases with underweight is not very far (59, 40 days). The mean and median for recovery from stunting was around three months which is less than the anticipated values. The median value indicates that half of cases recovered before that value and the other half after that.

2. Follow up in Shijaia and Darraj areas

To ensure continuity of care, thankfully, DCA supported the process of follow up of all cases screened in the last two projects in Darraj and Shijaia. Our team called the cases case by case among those who are still under 5 years old. Families are given appointments and their children were assessed. Those who found normal were encouraged to join the well baby program, meanwhile those discovered as anaemic or malnourished were enrolled in treatment program. The intension is to support the well baby services and to ensure that continuity of care is maintained.

To start with, the project team conducted in-depth analysis of the data pertaining to the previous two projects. All data collected about the children screened in the field during the period 2008 till 2010 were analyzed and compared with the initial readings at this project. Children families were called and asked to come to the NECC clinics and their children were assessed at the first visit. Haemoglobin, wt and height were measured in order to assess the sustainability of the interventions done at the first projects. The findings were very encouraging as illustrated in the table below. Among those who were found normal in the field at the screening (in the previous project), the percentage of those remained normal was around 99% in reference to underweight and wasting implying that children probability of keeping good anthropometric measurements is extremely high. Regarding stunting (chronic malnutrition), 90-95% of those who didn't have stunting in the field during the screening still normal and don't have it now (after two years). Findings about anaemia (84-87%) are also encouraging although it is less bright as malnutrition.

Table 9: Change in the status of children assessed in the first project/s

Variables	Shijaia	Darraj
Changes in cases which were found normal in the field		
Status	Percentage of those who found normal in the field and remained normal when examined at this project	
Regarding Underweight	98.35	98.83
Regarding Stunting	90.27	95.96
Regarding Wasting	99.21	99.02
Regarding Anaemia	87.12	84.24
Change among sick babies who became normal after receiving treatment at the project		
Status	Percentage of those who found sick when examined in the field and became normal after treatment and still till now normal	
Regarding Underweight	98.23	97.22
Regarding Stunting	88.83	91.37
Regarding Wasting	99.85	98.37
Regarding Anaemia	81.04	71.51
Change among sick babies who remained sick till the end of project		
Status	Percentage of those who found sick at the end of the project and became normal after that	
Regarding Underweight	55.56	41.18
Regarding Stunting	24.35	26.92
Regarding Wasting	91.67	58.33
Regarding Anaemia	69.96	48.54

Regarding those who were found diseased in the field therefore enrolled in the program and treated till they became normal, the majority maintained healthy status. Around 99% of children who were suffering from underweight and wasting and recovered at the project, they maintained the achievement and remained healthy after the graduation till now. Slightly, less achievement was made among children who were stunted and then became normal as a result of the intervention as 88-91% of them remained normal and the rest were relapsed. However,

regarding anaemia, 71-80% of those who were anaemic and then became normal as a result of the project interventions, they are still normal and didn't relapse.

Interestingly, even those who didn't recover till the official end of the previous projects, some were recovered after that due to the follow up and the commitment of their families as follows;

- In underweight 41-55%
- In stunting 24-26%
- Wasting 58-91%
- Anaemia 48-69%

What could be concluded from that in-depth analysis is that the interventions made by NECC are sustainable and the possibility of relapse is minimal. The degree of achievement depends on the nature of the diseases and diseases that are common due to chronic insufficiencies of food and its ingredients (anaemia and stunting) and most likely to occur as they are contextual.

During the project life, 13254 children were assessed at the well baby service delivery point at Shijaia and Darraj Clinics. Among them, 7735 were new cases and the rest were from those already receiving services at the well baby clinics (ordinary cases and cases from the previous projects that joined the well baby program). 2662 had joined the well baby program after graduation from the previous two projects therefore there was no need to call them as they are already available. After calling/visiting them, 5056 children came to the well baby services and had been assessed. 12290 from those who were screened in the previous projects were grown up and became older than 5 years therefore not included (target children below 5 years). In total, 23,090 well baby follow up visits were performed to the attendants of the well baby services in addition to 22,756 visits to those who were found diseased to receive follow up. From children visiting the well baby as regular visits and those called from the previous projects, 5461 children were found abnormal and enrolled in intensive intervention program.

In total, around 16215 calls were made to families of the previously enrolled children in the last two projects (First and second call). To bring defaulters back to the program, 981 calls were also made. Calls to bring those who didn't recover previously from anaemia in order to be examined for haemoglobin electrophoresis had constituted 363 calls. In addition, for those who didn't respond, 4112 visits were performed to bring them for the assessment.

The percentage of malnutrition among the attendants of the well baby visits was around 21.78 in Shijaia area while it was 14.8 in Darraj area. The prevalence of anaemia was higher as between 29.7-34% children were discovered as anaemic among those attending the well baby visits.

Table 10: Beneficiaries of Shijaia and Darraj health centers visiting well baby clinic

Variable	Shijaia					Darraj					Grand Total
	Q1	Q2	Q3	Q4	Project life	Q1	Q2	Q3	Q4	Project life	
Number of all children visited the well baby cases					6652					6602	13254
Number of those became older than 5 years	6275	659	766	537	8237	2437	556	639	421	4053	12290
Number of new children visited well baby clinic	772	1153	1017	812	3754	903	1473	975	630	3981	7735
Number of cases from previous projects who came without calling them					939					1726	2665
Number of cases from previous projects who came after calling them					2308					2748	5056
Number of well baby visits	3237	-214	3088	2155	11694	2671	3480	2989	2256	11396	23090
Number of visits of the children enrolled in the treatment program	1796	4192	4158	2091	12237	1578	3559	3439	1943	10519	22756
Total Number of those examined and found abnormal and enrolled in treatment program	1068	843	578	316	2805	923	792	554	389	2656	5461
Number of those examined and found abnormal and enrolled in treatment program from well baby visits	789	665	468	261	2183	476	564	442	313	1795	3978
Number of those examined and found abnormal and enrolled in treatment program from previous project	279	178	110	55	622	447	227	111	76	861	1483
Percentage of malnourished children among those visited the clinic	17.7	17.32	18.36	19.15	21.78	15.4	10.67	10.22	10.85	14.8	
Percentage of anaemic children among those examined for hg	36.8	32.84	29.68	25.83	29.71	39.6	33.19	39.36	40.75	34.67	
Number of telephone calls made to bring old cases (first and second)	1244	1742	1518	2361	6865	1908	3378	2267	1797	9350	16215
Number of home visits done to bring cases	153	505	919	670	2247	257	977	479	409	1865	4112
Number of calls to bring cases for thalessemia			130	0	130			99	134	233	363
Number of calls to bring defaulters	-	214	136	13	363	-	138	468	12	618	981

The next table shows the change in the status of those who were enrolled in the treatment program.

Table 11: Change in cases enrolled in Darraj and Shijaia treatment program

Variable	Recovered		Improved		The same		Deteriorated		Total
Shijaia									
Anaemia	No	%	No	%	No	%	No	%	
0-60	130	29.7	30	6.9	262	60.0	15	3.4	437
61-90	230	71.7	19	5.9	61	19.0	11	3.4	321
More than 91	1023	75.6	92	6.8	189	14.0	50	3.7	1354
Underweight									
0-60	24	31.2	1	1.3	52	67.5	0	0.0	77
61-120	61	59.8	8	7.8	31	30.4	2	2.0	102
More than 120	96	64.4	2	1.3	42	28.2	9	6.0	149
Stunting									
0-60	36	17.8	4	2.0	161	79.7	1	0.5	202
61-120	97	42.2	6	2.6	117	50.9	10	4.3	230
More than 120	167	33.5	20	4.0	275	55.1	37	7.4	499
Wasting									
0-60	10	34.5	0	0.0	17	58.6	2	6.9	29
61-120	36	66.7	8	14.8	9	16.7	1	1.9	54
More than 120	59	84.3	0	0.0	10	14.3	1	1.4	70
Darraj									
Anaemia									
0-60	127	30.0	40	9.5	248	58.6	8	1.9	423
61-90	213	70.5	30	9.9	46	15.2	13	4.3	302
More than 91	970	79.0	78	6.4	157	12.8	23	1.9	1228
Underweight									
0-60	38	43.7	2	2.3	46	52.9	1	1.1	87
61-120	63	60.0	4	3.8	38	36.2	0	0.0	105
More than 120	95	55.9	5	2.9	65	38.2	5	2.9	170
Stunting									
0-60	51	39.2	6	4.6	72	55.4	1	0.8	130
61-120	115	66.5	3	1.7	51	29.5	4	2.3	173
More than 120	206	55.5	21	5.7	140	37.7	4	1.1	371
Wasting									
0-60	52	66.7	3	3.8	21	26.9	2	2.6	78
61-120	89	81.7	3	2.8	14	12.8	3	2.8	109
More than 120	111	80.4	7	5.1	16	11.6	4	2.9	138

At Shijaia Clinic, the rate of recovery is high in anaemia (29.7%) within less than 60 days; 71.7% at 61-90 days and 75.6% at more than 90 days. The longer the child stays, the higher the achieved recovery rate. Less than 5% of anaemic cases were deteriorated at any reporting period. The recovery rate at Darraj Clinic is similar (see table 10). The goal to achieve 50% recovery, improvement and/or preventing further deterioration was far exceeded.

Regarding underweight, at less than 60 days, between 31-43% of cases were recovered completely. Among those stayed 60-120 days, 59.8-60% of children were recovered with higher recovery at Darraj clinic. Similarly, at more than 120 days, the recovery rate increased up to around 55-65% being better at Shijaia Clinic. Findings about wasting was much higher as the recovery rate was more than 66.7-81% at two to four months; 80-84% at more than 120 days. Very low percentage of children reported deterioration of their condition. Regarding stunting, improvements were

slower but much better at Darraj than Shijaia area. At less than 2 months; between 17-39% of children were recovered. The recovery rate reached between 42-66% at 60 to 120 days. Less than 8% of children reported deterioration of their condition at any given period.

Looking to the table shows that the level of improvement at the two clinics is much higher than what is anticipated. The vast majority of cases were recovered, improved and/or prevented from further deterioration. Cases which had deterioration were mainly sick children suffering from other acute diseases particularly infections (especially wasted cases).

5-Health education



To promote healthy practices, health education was provided to families particularly to caregivers focusing on malnutrition, healthy food, anaemia preventive practices, environmental health and so on. Health education is provided based on the needs of families. It is worth noting that the recruited field community workers are experienced on providing health education. Although it is difficult to precisely estimate the effect of health education, the signals are positive as explained later. For instance, families are compliant with providing the needed medications particularly iron

which is manifested in the significant improvement in haemoglobin level.

Table 12: Distribution of health education activities

Variable	Shijaia				Darraj				Rafah				Total
	1 Q	2 Q	3 Q	4Q	1 Q	2 Q	3 Q	4Q	1 Q	2 Q	3 Q	4Q	
Field health education									4733	6587	5248	798	17366
Focused sessions	17	42	75	35	18	46	30	29	9	6	10	16	333 not counted
Beneficiaries of the focused HE sessions	725	1861	2808	940	762	1793	1060	1189	197	172	235	374	12116
Counselling sessions					1	129	32	30	16	62	151	13	434
Grand Total													29916

In Rafah, the project team provided health education in the field during home visits to 17,366 caregivers. Additionally, the project staff provided focused health education to caregivers of malnourished and anaemic children with food

demonstration. In this project, 333 sessions were carried out at Community Based Organizations with 12,116 women participating. Additionally, 434 concentrated counselling sessions were organized for cases with specific problems. The project teams are planning to promote counselling activities and to document counselling sessions regularly. The health education provided by the clinic team is more specifically targeted. Participants are recruited based on actual need and a two month plan is developed to have the sessions more organized and focused. During field visits and focused health education sessions, around 10,000 copies of health education materials were distributed in Rafah. Since the beginning of the project, 60,000 copies of health education materials were distributed. The total number of beneficiaries who received health education from the beginning of the project till now is 29916 persons.

To further enhance the effectiveness of health education, the project team prepared a set of pre-test post-test questions to be implemented for a sample of attendants in health education sessions. So far, 145 questionnaires were completed with random sample of women who attended the health education sessions. Questionnaires were analyzed and measures will be taken accordingly.

Table 13: Effect of health education on mothers' knowledge as demonstrated in the pre post tests

Variable	Pre-test results (%)	Post-test results (%)
Knowing the concept of anaemia	86.2	96.6
Knowing signs of anaemia	66.2	91.0
Knowing food rich in iron	52.4	84.8
Knowing the timing for complementary feeding	80.7	95.2
Knowing the concept of malnutrition	74.5	86.8

The table above illustrates that health education was effective in inducing positive change in the level of awareness among the beneficiaries. Knowing the concept of anaemia has increased from 86.2% to 96.6%. Similarly, the definition of malnutrition were recognized by 74.5% at the pre test and increased to 86.8% at the post test. Significant improvement took place regarding knowing food rich in iron and the timing of complementary feeding.



During home visits, health education was provided to families particularly to caregivers focusing on malnutrition, healthy food, anaemia preventive practices, environmental health and so on. Health education is provided based on the needs of families. It is worth noting that the recruited field community workers are experienced on providing health education.



6-Staff training

A training plan has been developed and implemented during the period between December 15th through December 19th 2010. The total days of the implemented training at the first quarter were 5 days. Additional training days were provided based on the emerged needs in the remaining period of the project. Four additional training days were organized in the subsequent quarters.



Table 14: Distribution of training days by topics and dates

Date	Time	Number of participants	Topic	Trainer
December 15 st 2010	8 to14	25	Orientation to the new project	Dr Bassam Abu Hamad
			Work designs and requirements	
			Lessons learned from first year project	
			Changes in design and implementation	
December 16 st 2010	8 to14		Work strategies	Dr Bassam Abu Hamad
			Follow up strategies	
December 17 th 2010	8 to 14		Practical training	Lubna Sabah and Ahlam Rabah
December 18 th 2010	8: 14	25	Database uses	Naser Weshah
			Data entry and Generating reports	
			Practical training	Lubna sabah and Ahlam Rabah
December 19 th 2010	8: 14	25	Work manuals and protocols	Dr Bassam Abu Hamad and Lubna Sabah
			Responsibilities and interactions	
			Final preparation	
			Field visits to the implementation site	
March 6 th 2011	8-13	18	Counselling techniques	Dr Rajaia abu Abdo
			Responsibilities and interactions	
			Role play	
			Modern approaches to counselling	
May 22 nd 2011	8: 14	37	Diagnosis of malnutrition and anaemia	Dr Sami Mana
			Lab investigations	
			Treatment of complicated cases of malnutrition and anaemia	
			Referral of malnourished cases	
September 25 th 2011	8: 14	40	Management in health projects	Dr Bassam Abu Hamad
			Monitoring	
			Understanding self as a manager	
October 30 th 2011	8-14	37	Psychosocial and mental health	Samah Mahmoud-GCMHP
			Measurement of mental health	
			Needs assessment	

Topics covered included counselling techniques and practices, areas to focus on during counselling, treatment of severe anaemia and malnutrition, deferential diagnosis of anaemia and malnutrition, advanced diagnostic investigations, psychosocial issues management practices and monitoring as a part of program

management and others. Also, a reflection session will be conducted to analysis the performance of the project and lessons learned. The training was provided by the NECC teams, and the local experts as follows;

7-Drugs and formula distributed



Table 15: Distribution of drugs and therapeutic food dispensed

Variable	1 Q	2 Q	3 Q	4Q	Total
Rafah					
Iron	1205	2785	2185	1097	7272
Milk	732	1718	7272	784	10506
Plumpy nuts		2100	240	990	3330
Multivitamins			164	127	291
Darraj					
Iron	2037	4236	2948	1783	11004
Milk	810	1486	1397	615	4308
Plumpy nuts		1110	2490	490	4090
Multivitamins			30	43	73
Shijaia					
Iron	2222	3976	3111	1633	10942
Milk	1127	2111	3803	1134	8175
Plumpy nuts		3150	894	674	4718
Multivitamins			34	40	74
Grand Total					
Iron	5464	10997	8244	4513	29218
Milk	2669	5315	12472	2533	22989
Plumpy nuts	0	6360	3624	2154	12138
Multivitamins	0	0	228	210	438

As aforementioned, the treatment program of anaemic and malnourished includes distribution of milk and the provision of medications. In total, 29218 bottles of iron were dispensed in the field and at the NECC clinic. According to the protocols, iron treatment should be provided up to three months as a therapeutic dose followed by additional three months as a prophylactic dose; therefore the consumption of iron

will continue even after the end of the project. The total amount of iron dispensed at this project is much higher than what was dispensed in the previous projects.



In total, 22989 cans/package of enriched milk were distributed to the malnourished children above 6 months of age up to three years. The management program for treating malnourished children requires up to 4 months; therefore, it is anticipated that the consumption of milk will continue in the coming months. The amount of milk dispensed at this project is five times more than what was dispensed in the previous projects (average 4000).

The UNICEF donations included also Plumpy nuts which is high in energy and iron. More than 12,000 sachets of Plumpy nuts were distributed during the last three quarters. The treatment of unresponsive anaemic cases included providing multivitamins. In total, 438 bottles of multivitamins were distributed. This new line of treatment was provided only in this project.

8- Laboratory tests

Table 16: Distribution of lab test carried out

Test	Rafah				Darraj				Shajaia				Total
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	
Urine analysis	178	298	280	112	103	264	183	106	180	338	234	117	2393
Stool analysis	229	442	404	165	120	342	262	161	211	400	300	172	3208
Complete blood count	131	447	420	166	5	90	100	39	29	62	59	56	1604
Haemoglobin testing in field	1806	2439	2258	391	0	0	0	0	0	0	0	0	6894
Haemoglobin testing in clinics	448	854	1039	489	1252	1678	1281	867	1539	1883	1523	868	13721
Haemoglobin electrophoresis	0	3	13	20	0	8	42	52	0	2	21	47	208
Grand Total	2792	4483	4414	1343	1480	2382	1868	1225	1959	2685	2137	1260	28028

To screen all children in Rafah area for anaemia, haemoglobin testing was conducted for all children aged from 6 months to 5 years. Anaemic children and malnourished one undergo further investigations. Also, all the previously enrolled children in the nutrition project implemented in the last two years were examined for haemoglobin level.

In total 28028 tests were conducted. The tests done outside the NECC were not included in this report, except the 208 tests which were conducted at the

Thalassemia Society. The number of haemoglobin examinations done at the three clinics (13721 tests) is almost double the number of that test which conducted on the field (6894). 1604 complete blood count tests were conducted. In total, 2393 urine analysis and 3208 stool analysis were performed.

9- Referral

Table 17: Referral to other organizations

Organization	Rafah				Darraj				Shajaia				Total
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	
Ard El Enssan	8	8	0	0	7	15	0	0	22	16			76
Gaza European Hospital	1	11	12	4									28
Thalasemia Society	0	3	13	20	0	8	42	52	0	2	21	47	208
Dorra Hospital					1	1	1	2	0	0	0	0	5
Naser Hospital					1	27	26	23	3	62	49	33	224
Others						1				1			2
Grand Total	9	22	25	24	2	37	69	77	3	65	70	80	543

Availability of referral services is an important dimension in the continuity of health care. In this project, around 543 cases were appropriately referred to other health organizations to undergo further investigations and/or to receive treatment. New sites for referral were explored such as the Gaza European Hospital and the Thalasemia Society. Unfortunately, referrals to Ard El Enssan were suspended later in the project due to financial problems at the organization. The MOH hospitals freely provided advanced treatment to the unresponsive cases including advanced lab investigations. Regular meetings took place between our teams and the teams of the referral facilities to exchange information and feedback. Referred cases were provided with referral forms according to agreement of the referral sites and appointments were taken to the clients.

Summary of the project indicators results

Table 18: Summary of the project indicators results

No	Indicator	Definition	Baseline	Achieved so far
1	Percentage of anaemic children presenting to the three health centres Target: Decreased by at least 30% from the baseline	Percentage of children presenting to the well baby clinic and discovered as anaemic. This doesn't include children involved in this program	Rafah 46% Darraj 60% Shijia 71.66% of the well baby clinic beneficiaries were anaemic	Prevalence revealed 25-34% Target achieved
2	Percentage of	Percentage of	Rafah 19.88%	Prevalence

	malnourished children presenting to the three health centers Target: Decreased by 30% from baseline	children presenting to the well baby clinic and discovered as malnourished. This doesn't include children involved in this program	Darraj 17.33% Shijaia 24.78% of the well baby beneficiaries were malnourished	revealed 11.4-21% Almost achieved
3	Percentage of moderately malnourished children U5 diagnosed and prevented from further deterioration or timely improved (within 4 months) Target: 50% of cases improved, recovered or stayed the same and prevented from further deterioration	This includes children who recognized as moderately malnourished and timely recovered, improved and/or remained the same as a result of the project interventions. This includes the average time needed to return the malnourished child to normal (Ideally 4 months).	% Deteriorated Rafah 21% Darraj 24.8% Shijaia 28.8% At 4 months Recovered (13.5 D; R 23.9%; S 14.42%)	More than 90% Target achieved
4	Percentage of anaemic children 6 months to 5 years diagnosed and prevented from further deterioration or timely improved (within 3 months) Target: 50% of cases improved, recovered or stayed the same and prevented from further deterioration	This includes children who recognized as anaemic and timely recovered, improved and/or remained the same as a result of the project interventions. This includes the average time needed to return the malnourished child to normal (Ideally 3 months).	Rafah Darraj Shijaia	More than 90% Target achieved
5	Number of clients presenting to the three health centers with public health related diseases such as diarrhea,	This is a proxy indicator reflecting the change in behaviors	Infectious D and parasites S=16.5%; D=19%; R=13% Skin diseases S,	Shijaia 14.4% Darraj 17% Rafah 14% Shijaia 19%

	sanitary related diseases due to contamination Target: Reduced by 10%		22%; D 18.8%; R 16% Gardia Lambia S=13.2%; D=6% R=19%	Darraj 16.1% Rafah 13.2% Shijaia 11.9% Darraj 5.3% Rafah 14.4% Target achieved
6	Number of children screened and identified for malnutrition in Rafah area. Target: 7000 children (0-5y) will be screened Out of them around 600 are expected to suffer from malnutrition	This includes number of children U5 who were screened (wt and height); and number of children who were identified as malnourished children (wasting, stunting, under weight)	Not applicable	In total, so far 7914 screened 901 were malnourished (target 600) Target achieved
7	Number of children screened and identified as anaemic in Rafah area Target: 7000 children (6m-5y) will be screened out of them 3000 are expected to suffer from anaemia	This includes the number of children 6m-U5 who were screened (haemoglobin); and identified as anaemic children (below 11)	Not applicable	In total, so far 6967 screened 1792 were anaemic Number of cases depends on the prevalence
8	Number of children screened and identified as malnourished/anaemic from those who were screened previously (last two projects) in Darraj and Shijaia areas and also those who present to the well-baby clinics Target: contacting 28,000 children (0m-5y) will be screened out of them cases will be discovered	This includes the number of children 0m-U5 who were screened (wt, ht); and identified as malnourished	Not applicable	5461 were found abnormal and included in the program 3978 from the well baby 1483 after calling them

	and treated (2200 malnutrition and 12,000 anaemia (combined for both anaemia and malnutrition))			
9	Number of population living in Darraj, Rafah and Shijaia areas who were exposed to health education messages about anaemia and malnutrition Target: 190,000 populations were directly and indirectly received health education messages	This includes the number of the visited householder members who received health education, the number of beneficiaries who received nutrition related health education	Not applicable	29916 direct beneficiaries Target achieved
11	Number of health education materials distributed (anaemia and malnutrition pamphlets) Target: 60,000 pamphlets distributed	This includes the number of health education materials printed and distributed to beneficiaries at home visits and at the other health education activities	Not applicable	60000 Target achieved
12	Number of participants of focused health education activities such as meetings, community events, afternoon activities, lectures, theatres Target: 2000 beneficiaries received focused health education messages through meetings and counseling sessions. 100 meetings will be conducted	This indicator reflects the number of beneficiaries attending health education activities such as community events, lectures, preschool activities, CBOs meetings and others by type of activities, participants and categories	Not applicable	12116 persons participated Target achieved

	distributed as 4 meetings per each monthly, with 20 participants in each			
13	Number of therapeutic milk distributed (all types) Target: 10,000 cans/packages	This includes the number of formula cans distributed to the moderately malnourished children 6m-5 years children	Not applicable	22989 received milk and 12138 received plumpy nuts Target achieved
14	Number of iron supplementation bottles provided to anaemic children Target: 35,000 bottles distributed	This includes the number of iron bottles distributed to anaemic children	Not applicable	29, 218 Still dispensing is going on
15	Number of health personnel from the NECC clinics who received training on nutrition and comply with the technical standards in diagnosis and treatment of malnourished and anaemic children Target: 30 participants will receive 5 day training on nutrition	The number of health workers who received training in nutrition is straightforward, and will be reported in reference to number of training days, training topics and so on, the compliance with technical standards will be assessed through checklists and reviewing records.	Not applicable	More than 30 participants received 9 training days
16	List of procurements procured, delivered and appropriately distributed Target: Procurement list mentioned in the proposal delivered	This includes the procurement of equipment (hemocues, ht measurement, wt measurements and so on); the procurement of drugs and supplementation; the procurement of disposables.	Not applicable	Done
17	Number of	This indicator	Not applicable	8058 households

	households visited in Rafah area Target: around 6,000	reflects the number of households reached at households in rafah area		Target achieved
18	Number of lab tests done Target: 50,000	This indicators reflects the activities of the program at two levels Clinic lab (CBC, Stool analysis, Haemoglobin testing (field and clinic)	Not applicable	28028 tests were conducted
19	Number of telephone calls conducted to bring children into the program	This activity related indicator reflects the team efforts in bringing the children registered previously in the last two projects	Not applicable	16215 telephone calls
20	Number of home visits and telephone calls to bring defaulters to the program and the percentage of success in bringing them to the program	This reflects the processes and outcomes of efforts to bring defaulters to the program	Not applicable	In Shijaia and Darraj 4112 home visits 981 calls In Rafah 1949 calls 604 visits Success rate, around 70%

Challenges

No significant challenges other than what was previously reported are facing the project.

- Reaching an agreement with the DCA about monitoring was a real challenge at the start of the project. However, both parties developed working relationships and the work went smoothly after that.
- The Political situation remains a real challenge that affect the delivery of the needed items. With the availability of adequate strategic stock it is not anticipated that this will be a serious problem.

- The uncertain contextual factors such as poverty and availability of food in the local market could also be an intervening factor affecting the impact of the project interventions.
- Families' commitment to comply with the treatment regime is also an additional factor that could cause some delay in rapid and quick recovery. NECC more proactively monitors families' commitment and compliance with management regime.
- Reluctance of some families to come for follow up due to various reasons remains a challenge that NECC is aware about and rigorously monitors.
- The fluctuation of the electricity status in and the frequent power cuts affects the work and the use of the computer. NECC clinics now have generators for rational (limited) use during electricity cuts. Also, NECC procured laptops for the project use.
- Reduction of the activities of Ard El Inssan has restricted the number of cases referred by the NECC to that organization.
- Areas previously screened visited were so widespread and some families perceived the accessibility to the clinics as an issue for them. Therefore, some of them discontinued the treatment of their children at the NECC clinic and joined another nearby health facility closer to where they live.

Deviation from the work plan

The project was implemented on line with the work plan. No reported delays were faced since the start up of the project; except when there was disagreement with DCA at the beginning of the project. The proactive planning and the careful monitoring of the management minimized the occurrence of delays. Because, the accessibility to the houses wasn't limited by the political situation, clients had access the NECC health centre, drugs and consumables. In conclusion, the project has been completed in a timely manner.

Visibility

To give credit to the DCA, all the project documents are banded by the DCA logo. Communities have been informed about the project, its objectives and the contribution of DCA in this regard. Additionally, the DCA logo is also banded on the bags carried out by teams visiting the houses. United Nations agencies and the MOH are aware that this project is supported through



the DCA. More visibility will be recognizable with the progress of the project were the results could be discussed and shared at large meetings as what happened with the previous project. Recently, NECC produced a documentary film about its activities including the nutrition project which is being circulated to a large number of partners and stakeholders.

Sustainability

Sustainability has a different meaning in areas characterized by high degree of uncertainty such as the Gaza Strip. This project focused on covering "Rafah" area, which is served by the NECC health program, plus promoting the nutrition status of the population benefited from the implemented nutrition projects in Darraj and Shijaia in the last two years through rigorous follow up of cases enrolled as well as enrolling new cases which present to NECC clinics. By nature, this project is aiming to ensure sustainability as manifested in its objective; "to promote/sustain the nutritional status of children living in Darraj and Shijaia; the two areas which had benefited from the previously implemented two emergency nutrition projects in the last two years".

The findings concluded at the beginning of the project to assess the change of the cases which had been screened previously were very encouraging as described earlier. For example, among those who were found normal in the field at the screening (in the previous project), the percentage of those remained normal was around 99% in reference to underweight and wasting implying that children probability of keeping good anthropometric measurements is extremely high.

However, despite the concern towards the sustainability of NECC's operations, it must also be recognized that there are limitations to sustain all the aspects of such a project which contains an outreach service provision (in Rafah). The underlying causes of the poor nutrition status and poor health status of Gazans and the difficulties faced by the health services are not under the control of the project as the root causes of nutritional problems in Gaza are mostly political in nature.

NECC is a well established organization with solid structure and strong foundation. The provided support through this project aimed to strengthen the identification and management of anaemic and malnourished cases and to promote the nutrition services provided in the NECC clinic which will continue as a part of the regular activities within the clinic with some support. Meaning that the strategies used to treat malnourished and anaemic cases will continue and services provided at the clinics but not the field will continue with some support from the donors. The beneficiaries of the project were encouraged to continue receiving the NECC services especially the well baby services. This also includes continuing the management of cases that haven't recovered yet and also continuing monitoring the discharged cases. For instance, cases discharged from the project are included in the well baby care services and they receive growth monitoring services regularly.

One of the project objectives was to build the capacity of the staff and to develop appropriate working strategies pertaining to nutrition. The project already left skills,

strategies and tools which will continue to operate despite the discontinuity of the fund through this project. The project included a health education component where thousands of caregivers were received health education about nutrition, awareness, healthy eating practices, hygiene and healthy sanitary conditions. Enabling communities to rely on themselves and to be able to control the spread of malnutrition and anaemia is a sustainable approach. Benefited communities are the most sustainable.

Last but not least, the project served a needy population and addressed an important health problem which fitted within the overall health plan of the Palestinian population, through an integrated approach of services provision and strengthening communities' abilities to meet their needs. The project is considered a model for nutrition interventions that shifts from only just carrying out assessments to effective management and ensuring recovery of cases. Currently, other organizations already benchmark the achievements of this project and try to adopt its interventions.

Key lessons learned

The lessons learned from this project were discussed in the text under each component. NECC has learned from the projects which were implemented previously and managed to overcome many of the gaps faced in that project. However, concisely, the following bullet points summarize the key lessons learned:

- Comprehensive PHC clinic-based approach is effective in controlling malnutrition and anaemia if used appropriately. Until, regular surveillance system is in place in Gaza, screening and management of malnourished/anaemic cases at the community level should continue.
- The utilized house to house approach enabled the NECC to discover thousands of concealed cases of malnutrition and to contribute to their recovery. This activity should be done frequently.
- Combating anaemia and malnutrition is possible with simple and cost effective intervention. The Palestinian nutrition protocol is an appropriate guide to treat malnutrition and anaemia. The appropriate implementation of the protocol can produce good outcomes.
- Malnutrition is a multi-faceted phenomenon which requires multidisciplinary actions. Health education alone is never effective in overcoming malnutrition but it is an essential component in the management of malnutrition and anaemia.
- Anaemia represents a public health problem that requires interventions. Focus should be directed towards anaemia management and control replacing the old approach of just carrying out assessments for hemoglobin. Anaemia management is cost effective as it requires relatively reasonable resources and produces positive outcomes.
- Follow up and monitoring is essential for the recovery of cases.
- Computerized health information system is very helpful at both operational and managerial levels.

- Building good relationships with the local community and appropriately involving the community leadership in the project related issues contribute to the community acceptance and gaining support to the project.
- NECC should activate its community programs in certain areas including expanding clinic friendship committee
- Intensifying meetings with community leadership
- Coordination and integration in Gaza is possible and it resulted in excellent working relationships among health organizations.
- Referral services still require more efforts in order to maximize its effects. This includes more work with the management of the referral organizations, agreeing on criteria for referral, signing MOU with the referral organization, institutionalizing a system for feedback and exchanging information.
- Last but not least, the NECC management's commitment, appropriate planning and rigorous follow up, was the main driver for the success of this project.

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