Final Report

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

November 1st 2011 through December 31st 2012

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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

Acknowledgements

Many people are responsible in part for accomplishing this project. I would like to express my deep thanks and gratitude to the Danish people, Danida and DCA for providing the needed resources to implement this important project. In particular, NECC would like to thank Mr Anthony Grange, Regional Representative-DCA, Mr Mads Schack Lindegard Ex-Regional Representative-DCA and his team in Jerusalem and Gaza who were responsive, supportive and have facilitated all the aspects of the project.

Our sincere appreciation extends to the primary beneficiaries of the project; the children, their families and the local communities benefited from this project who showed commitment and dedication which contributed to the success of this project.

With love

Dr. Issa Tarrazi
Executive Director, NECC

Executive Summary

As a response to the emergency situation in the Gaza Strip, and building on the successful experience of the last three projects implemented in Shijaia, Darraj and Rafah areas, thankfully DCA supported the implementation of another one year humanitarian emergency nutrition project in the three localities served by the NECC. The project has been extended by additional two months. 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 screening, identifying anaemic and malnourished cases, 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 three 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 2011, 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. The previously prepared two health education brochures were printed (one about anaemia and another about malnutrition) and 60,000 copies were produced and distributed during the health education sessions at the NECC clinics and the community based organizations. Additional two brochures addressing breast feeding and hygiene were designed and printed in coordination with the health education department of the Ministry of Health. Also, 60,000 copies of these brochures were printed and being distributed.

The total number of children who received well baby services during the project life is 14805 (target 10,000); 33236 well baby follow up visits were also performed (target 20,000). During the project period, 7550 new children were assessed at the well-baby service delivery points. From the previous projects, 814 children are still receiving follow up services according to the treatment plan. Among the children assessed at the

NECC clinics, 3980 were found abnormal and enrolled in the program for treatment. The percentage of malnutrition among the attendants of the well-baby visits was around 20% in Shijaia area while it was 14% in Darraj area. The prevalence of malnutrition was the highest in Rafah 26.5%. The prevalence of anaemia was generally higher as it ranged from 37.8% in Darraj to 22.5% in Shijaia and 19.6% in Rafah. The reported prevalence is higher than the figures revealed in the last year. The target to recover, improve the health status and/ or prevent cases from further deterioration was achieved.

In total, around 15070 calls were made to families of the previously enrolled children in the previous projects (First and second call) in addition to 3337 home visits to bring them to the assessment. 5498 calls were performed to bring defaulters in addition to 1391 home visits. Moreover, 9179 SMS were sent as a reminder to control defaulters.

The rate of recovery is high in anaemia particularly in Rafah (37.5% at less than two months) followed by Shijaia and Darraj (around 30% at less than two months); which is expected to rise further with the staying longer in the program. Limited number of cases had been deteriorated and those now are receiving further attention. The lease reported recovery rates were at Darraj. In Shijaia, at 61-90 days 67% of cases recovered.

Similar results were noticed regarding underweight with a recovery rate between 41-75% at less than two months. At 61-120 days 50-71% of cases completely recovered at the three centres. The recovery rate from underweight was the highest in Shijaia. Few cases with underweight were deteriorated due to different reasons including illnesses. Regarding wasting, the speed of recovery was higher and ranged from 54-83% at less than two months while it reached from 83 to 93% at 61-120 days. The rate of recovery in Darraj was the highest among wasted cases. Because stunting takes more time to recover than (chronic malnutrition), the speed of recovery was slower; it ranged from 25 to 50% at less than two months. The recovery of stunted cases at 61-120 days was 47% at Darraj Clinic and reached 70 at more than120 days.

It is worth pointing that the above mentioned figures reflect the change in cases conditions during this reporting period but not necessarily for those admitted during this reporting period. Many of them were admitted before and remained not recovered. If we exclude those cases admitted before, the recovery rate will significantly increase as detailed later in the report.

The project staff provided focused health education to caregivers of malnourished and anaemic children at least once a week accompanied with food demonstration. During the project period, 647 sessions were carried out at Community Based Organizations and also within the three

NECC clinics with 17442 women participating. Additionally, 912 concentrated counselling sessions were organized for cases with specific problems at the three clinics. Shijaia clinic elicited the highest number of focus group sessions and beneficiaries.

Throughout the project period, 24264 bottles of iron were distributed to anaemic children according to the treatment protocols. The consumption of iron was the highest in Darraj followed by Shijaia and Rafah. Although it is not secured by the fund provided by this project; 9609 cans of milk were distributed to malnourished children aged over than 6 months. The consumption of therapeutic milk was more in Rafah.

The pre-established target of conducting 15,000 tests was achieved. 18421 tests were performed. The most frequently performed test was haemoglobin testing (13548) followed by stool analysis (2475). Darraj clinics elicited the highest number of lab tests among the other clinics possibly due to the higher rate of anaemia at this clinic.

Availability of referral services is an important dimension in the continuity of health care. During the project period, 414 cases were appropriately referred to other health organizations to undergo further investigations and/or to receive treatment. New sites for referral were considered such as Aldorrah Hospital, the Gaza European Hospital and the Thalassemia Society. The MOH hospitals freely provided advanced treatment to the unresponsive cases including advanced lab investigations. The mostly frequently referral site was thalassemia society (207 cases) followed by Naser Hospital. Shijaia Clinic referred more cases than the other places (174). 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.

The project has been implemented according to the action plan and implemented in a timely manner benefiting from the lessons learned of the last years' project. The main potential challenges facing the project were budgetary limitations, inadequate supplies of formula and limited staffing level.

Project Summary

Country and type of humanitarian situation	Gaza Strip: Rafah, Darraj, and Shijaia Emergency Nutrition and Health Interventions for Children under 5
Project title	Emergency Humanitarian Nutrition and Health Response for Vulnerable Children under 5 years old in Vulnerable Areas- Gaza Strip
Objective(s)	Contributing to the promotion of child health status through reducing the prevalence of malnutrition and anaemia among children under 5 in the vulnerable areas of the Gaza Strip served by the NECC; thus reducing mortality and morbidity resulted from nutritional deficiencies
Target groups	Direct: Children under 5 years old Indirect: Caregivers/ families, local community, other health providers and policy makers
Main outputs	• 10,000 children under 5 are screened and treated for anaemia and malnutrition • 1,500 children recognized as malnourished and received appropriate treatment according to the Palestinian national nutrition protocol • 4,000 children recognized as anaemic and appropriately treated according to anaemia treatment protocols • 20,000 community members exposed to health education sessions and practice healthy nutrition and hygienic behaviours • 20,000 well baby visits were performed • 25 NECC staff members are trained on the-State-of the art techniques in managing malnutrition and anaemia
Risks and pre-conditions	• Security situation improved or remained the same, allowing safe movement of NECC staff and beneficiaries, • Continued entry of goods such as drugs, disposables and equipment to Gaza.
Implementing organization	Near East Council of Churches
Amount applied for and main budget Components	$ 205,230
Implementation period	One year, November 1st 2011 through December 31st 2012

Summary of the project indicators by baseline readings and results achieved

No	Indicator	Definition	Baseline in last two years	Achieved
1	Percentage of anemic children presenting to the three health centers Target: Decreased by at least 30% from the baseline	Percentage of children presenting to the well-baby clinic and discovered as anemic. This doesn't include children involved in this program	Rafah 46% Darraj 60% Shijia 71.66% of the well-baby clinic beneficiaries were anemic	Prevalence Rafah 19.6% Darraj 37% Shijaia 22% Target fully achieved
2	Percentage of malnourished children presenting to the three health centers Target: Decreased by 30% from baseline	Percentage of children presenting to the well-baby clinic and discovered as malnourished. This doesn't include children involved in this program	Rafah 19.88% Darraj 17.33% Shjiaia 24.78% of the well-baby beneficiaries were malnourished	Prevalence Rafah 26% Darraj 14% Shijaia 20% Target achieved in Darraj and Shijaia
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).	Varies based on the actual start of implementing nutrition projects	Target achieved more than 90% were recovered, improved or stayed the same
4	Percentage of anemic 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 anemic 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).	Varies based on the actual start of implementing nutrition projects	Target achieved more than 90% were recovered, improved or stayed the same
5	Number of clients presenting to the three health centers with public health related diseases such as diarrhea, sanitary related diseases due to contamination Target: Reduced by 10%	This is a proxy indicator reflecting the change in behaviors	Infectious D and parasites S=16.5%; D=19%; R=13% Skin diseases S, 22%; D 18.8%; R 16% Gardia Lambia S=13.2%; D=6% R=19%	Shijaia 11.3% Darraj 8% Rafah 6,6% Shijaia 7% Darraj 6.2% Rafah 10.3% Shijaia 9% Darraj 4.6% Rafah 14.5% Target achieved
6	Number of well-baby visits provided Target 20000	This includes those who present regularly to the well-baby services and also those who came after calling them	Not applicable	33236 Well-baby visits were conducted

No	Indicator	Definition	Baseline in last two years	Achieved
7	Number of children screened and identified as malnourished from those who were screened previously (last three projects) in Darraj, Rafah and Shijiaia areas and also those who present to the well-baby clinics Target: 10,000 children (0m-5y) will be screened out of them 1500 are expected to suffer from malnutrition anemia and malnutrition)	This includes the number of children 0m-U5 who were screened (wt, ht); and identified as malnourished	Not applicable	• 14805 were screened at well baby services • 3980 were diagnosed and admitted suffering from anemia and/or malnutrition or both of them • 3166 from the well-baby visits • 814 from previous projects
8	Number of children screened and identified as anemic from those who were screened previously (last three projects) in Darraj, Rafah and Shijiaia areas and also those who present to the well-baby clinics Target: 10,000 children (6m-5y) will be screened out of them 4,000 are expected to suffer from anemia	This includes the number of children 6m-U5 who were screened (hemoglobin); and identified as anemic children (below 11)	Not applicable	
9	Number of population living in Darraj, Rafah and Shijaia areas who were exposed to health education messages about anemia and malnutrition Target: 20,000 populations were directly and indirectly received health education messages	This includes the number of the caregivers who received health education, the number of beneficiaries who received nutrition related health education	Not applicable	18354 beneficiaries received health education
10	Number of health education materials distributed (anemia 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	100,000 copies distributed
11	Number of participants of focused health education activities such as meetings, community events, afternoon activities, lectures, theatres Target: 2400 beneficiaries received focused health education messages through meetings and counseling sessions. 120 meetings will be conducted distributed as 4 meetings per each	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	17442 persons participated 647 sessions conducted 912 counseling session provided

No	Indicator	Definition	Baseline in last two years	Achieved
	monthly, with 20 participants in each			
12	Number of iron supplementation bottles provided to anemic children Target: 24,000 bottles distributed	This includes the number of iron bottles distributed to anemic children	Not applicable	24264 bottles of iron were dispensed
13	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 anemic children Target: 25 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	25 participated in 7 day training course
14	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
15	Number of lab tests done Target: 15,000	This indicators reflects the activities of the program at two levels Clinic lab (CBC, Stool analysis, Hemoglobin testing (field and clinic)	Not applicable	18421 tests were performed Target achieved
16	Number of telephone calls conducted to bring children into the program target 10,000	This activity related indicator reflects the team efforts in bringing the children registered previously in the last two projects	Not applicable	15070 telephone calls to bring cases to the program Target achieved
17	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	5498 calls were made to bring defaulters 1391 home visits were done to bring defaulters

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 developing 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.

This project offered 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 were 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 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 SPHERE minimal standards. This 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 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.

The previously implemented emergency nutrition projects in the last three years consisting of identifying malnourished and anaemic cases and providing them with appropriate 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.

Building on the success of the first year project, another project has been implemented in Darraj area through the period September 2009 to August 2010. All the households in Al Darraj area were visited (12421). The visited households contained 71,810 beneficiaries among them children constituted 17.4% (12504). The project identified 3284 children as anaemic which equals 30.1% of the total children examined. Within that project (Darraj area) around 44% of the anaemic children recovered and returned to normal or improved in less than 60 days from the time of their enrolment in the management program. The percentage of those who recovered or improved has increased with staying longer in the program and receiving the required medications as it reached around 67% at 60-90 days. Also, the project was successful in inducing positive impacts on the health status of the malnourished children. Regarding children with underweight 53% were improved and/or returned to normal at two to four months interval from the time of their enrolment in the project. Regarding wasting, 84% were improved and/or recovered within 61-120 days interval from the time of enrolment in the program. The recovery rate increased up to 89% with staying longer than 120 days and none reported to be deteriorated among wasted cases. Regarding stunting which reflects chronic exposure to malnutrition, 54% of the stunted children were recovered and/or improved at 2-4 months interval since their enrolment in the program.

A third round was conducted at three localities during the period September 2010 through October 2011 which aimed to screen around 7000 children in Rafah and to promote the follow up activities in Darraj and Shijaia in the last three years in order to sustain the achievements. 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 Rafah is 25.7% and 11.4% of the surveyed children were suffering from any kind of malnutrition. 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 mean period for complete recovery was 93 days and the median was 87 days with a standard deviation of 35 days. 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. 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 median time for malnutrition cases to recover was as follows; wasting, 53 days; underweight 59 days and stunting, 99 days).

In the same project, supporting 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. 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 (in 2010/2011) 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.

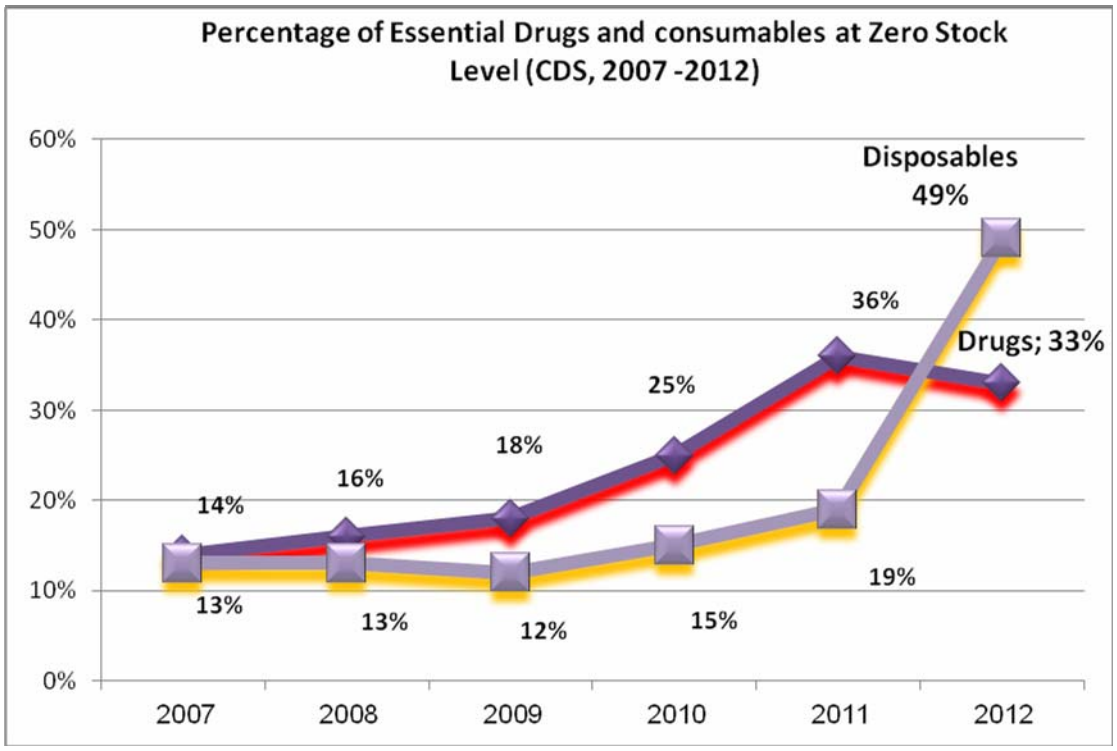
This year project focuses on covering "Rafah, Darraj and Shijaia " areas, which are served by the NECC health program, plus promoting the nutrition status of the population benefited from the implemented nutrition projects in the last years through rigorous follow up of the cases enrolled as well as enrolling new cases which present to the NECC clinics. Because NECC is serving these areas which are characterized by high fertility rates, new children were born after the house to house screening conducted earlier and some of the previously enrolled children are already grown up. It is difficult to sustain and maintain the achievement made, by the implemented nutrition projects, as still the lack of resources constitutes a barrier to implement a rigorous follow up of cases in order to maintain and promote their nutritional status.

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. More than 75% of families in Gaza receive humanitarian aid. Unemployment in Gaza is close to 40% and is set to rise to 50% (Palestinian Central Bureau of Statistics-PCBS, 2012). 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.



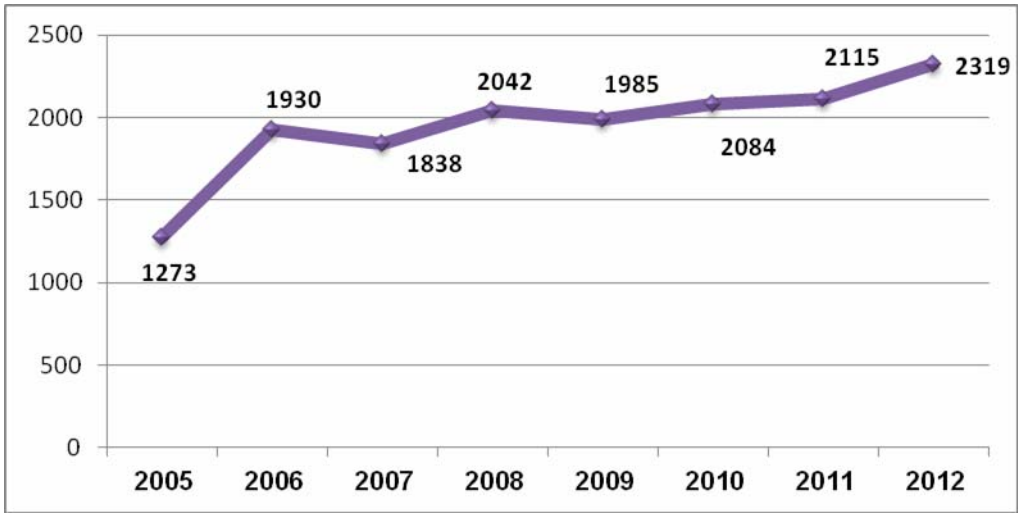
Wars on Gaza (December 2008/January 2009 and November 2012) had further deteriorated the already grave situation. The consequences of the war had manifested itself in thousands of casualties, demolition of thousands of houses, destruction of health facilities, domestic industrial workshops, destruction 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 economic 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 2012). 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.

Secular Trend of Watery Diarrhea among Age Group < 3 Years 2005-2012 (incidence per 100,000)

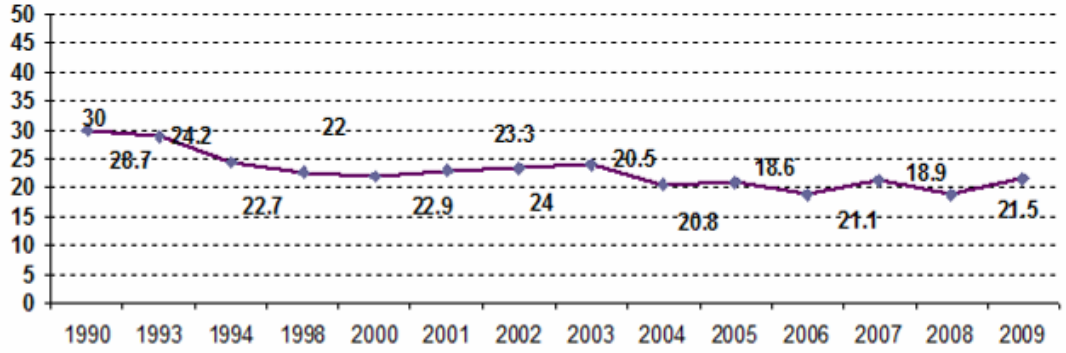


Almost all deliveries in Gaza occur in health care facilities with 22% of deliveries are by caesarean section. Almost all pregnant women receive antenatal care (ANC) but the timing and the quality of the services are still perceived as inadequate. Additionally, 30% of mothers had a post-natal visit with 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.

Infant mortality rate in GS from 1990 -2009

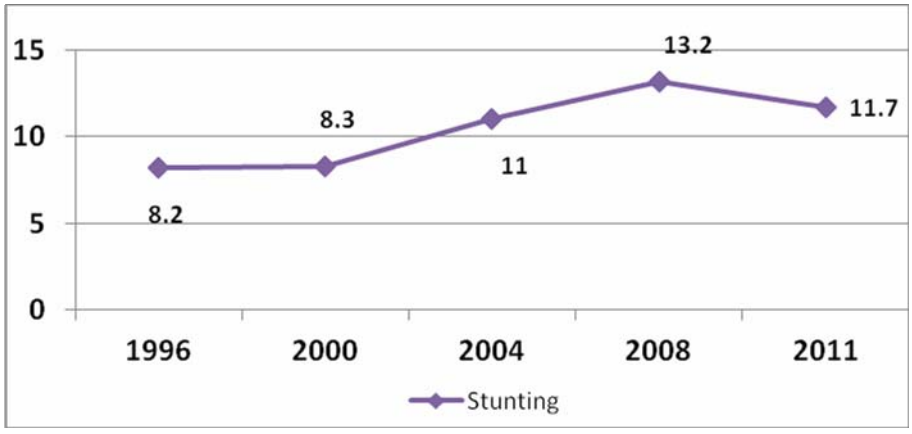


Acute respiratory infections are the third leading causes for infant deaths in Palestine. The available information indicates that 13.1% of the infant deaths are caused by pneumonia and other respiratory infections (MOH 2005). Diarrheal diseases are important causes of the morbidity in infants and children 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.

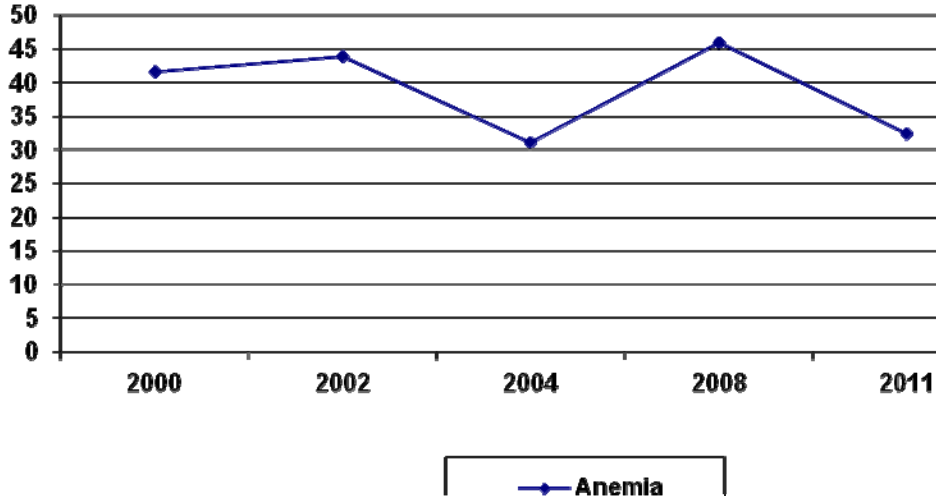
Change in stunting prevalence as estimated by different studies



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.

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.

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).

Concisely, 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, most health providers working on the area don't focus on nutrition and anaemia as they lack adequate follow up. Additionally, the achievements made in the previous three 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, the Ministry of Social Affairs provided food assistance to hardship cases. Previously, UNICEF and other health providers had provided support such as referral services and medications. The commitment of these parties is still valid. 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 the previous nutrition projects.

Project description

Overall objective

Contributing to the promotion of child health status through reducing the prevalence of malnutrition and anaemia among children under 5 years in the vulnerable areas of the Gaza Strip served by the NECC; thus reducing mortality and morbidity resulted from nutritional deficiencies

Objectives:

- To identify and appropriately treat the moderately and severely malnourished and anaemic children living in Rafah, Shijaia and Al- Darraj family health centres catchment's areas.

- To strengthen the role of the well-baby services provided at the NECC clinics in ensuring the provision of appropriate, continued and integrated growth monitoring and promotion services.

- To increase awareness of caregivers'/women living in the NECC three health centres' catchment's areas about healthy nutritional and appropriate sanitary practices.

- To promote/sustain the nutritional status of children living in Rafah, Darraj and Shijaia; the three areas which had benefited from the previously implemented emergency nutrition projects in the last three 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.

Definition of target group

The primary target of the project is children below the age of 5 who are malnourished and/or anaemic. Some of the malnourished children are also anaemic. Yet, as the prevalence of anaemia in Gaza is high (around 35%), the project recognized anaemic children who are underweight as well as with normal weight. Children presenting to the well-baby program at the three NECC family health

centres were regularly assessed according to the recommended well baby visits schedule. Those diagnosed with malnourished and anaemic or 'just' anaemic were treated according to their diagnosis and individual needs. Children previously enrolled in treatment programs continued to receive their treatment. Children and their caregivers had received nutritional services aiming to promote their nutritional status including carrying out screening (inside the clinic), follow up, revisits when needed, providing treatment to the malnourished and anaemic cases and continued treatment. In total, 10,000 children were supposed to receive services provided by this project.

The secondary target of the project is the caregivers of children particularly women. It is anticipated that, 20,000 community members will be exposed to health education messages about food, nutrition and hygiene to sustain public health. 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 40% 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 religion, gender, political affiliation, citizenship status and so on.

In addition 25 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).

Strategies

Because the previously implemented projects had included carrying out house to house screening for all the children in these three areas served by NECC, 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 (born after the assessment), and providing treatment to the relapsing cases. Interventions at these three 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.

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.

Finally, the project will help to further develop the capacity of the NECC to identify and manage the moderately and sever 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 SPHERE, although it is an emergency intervention, its strategies fits long term interventions and are on line with the national strategies and standards.

Outputs

- 10000 children living in Rafah, Darraj and Shijia areas are screened for malnutrition and anaemia at the well-baby clinic
- 1500 children living in the designated areas are identified as malnourished and treated according to the causative factors including de-worming, treating infections, referral services as needed and counselling according to individual needs also, advocacy and lobbying to promote food security.
- 4000 children living in the designated areas are identified as anaemic and treated according to the causative factors including de-worming, supplementations, referral services as needed and counselling according to individual needs.
- 20,000 community members exposed to hygiene and other measures to sustain reproductive and family health.
- 25 health workers at NECCs clinics trained on the-state-of the art practices in nutrition screening and management.

Main activities

1- Ensuring that appropriate, integrated and continued growth monitoring and growth promotion services are provided for the children in Rafah, Darraj and Shijaia areas within the well-baby program.

2- Conducting lab investigations

Needed lab investigations will be conducted for cases based on the Palestinian nutrition protocol. Based on the individual needs; cases will be examined for

- Haemoglobin level
- Complete blood count
- Urine analysis
- Stool analysis

- Urine and stool cultures
- Occult blood test
- Haemoglobin electrophoresis for excluding thalassemia
- Others as needed

3-Pharmaceutical Treatment

As per the current treatment protocol, all malnourished and anaemic children will be screened, thoroughly investigated and then treated accordingly including de-worming. However, due to the expected increased caseload following the nutritional screening, the number of drugs and supplements consumed at the clinic will be increased. Depending on the cause and medicated treatment includes iron supplementations, multi-vitamins, anti-parasitic, folic acid and antibiotics will be provided.

4-Health Education and Counselling

As aforementioned, nutritional disorders are multi-factorial and eating habits and practices are central factors in the development of malnutrition and anaemia. Eating practices are influenced by the cultural norms, habits and practices. Therefore, efforts directed to control nutritional disorders need to consider improving nutritional awareness about healthy food, healthy feeding practices, factors contributing to malnutrition and home to overcome them.

5. Referral services

Severe cases of anaemia and malnutrition will be referred to Ard El Enssan Association which is specialized in nutrition. Also, the MOH will provide access to treatment at secondary care facilities and to perform advanced laboratory tests as well. Follow up of referred cases will be carried out systematically. Cases which require advanced haemoglobin testing for thalassemia, iron binding capacity and hormones will be carried out at places other than NECC premises.

6. Train health staff in the state-of-the-art techniques in nutrition

Exceptionally long recovery periods to restore malnourished children to normal height for weight have been identified despite an excellent follow-up and record keeping system for patients seen by NECC, counselling on nutrition and micronutrient supplement provision. The high prevalence of anaemia and malnutrition requires effective management which will be ensured through provision of effective training followed by rigorous implementation and supervision. Building on the previous training provided in the last three years, additional training days will be provided.

Over a period of 5 training days, local consultants will:

- Provide technical advice on the monitoring of malnutrition and anaemia cases

- Provide training on managing and follow up of defaulters
- Provide training on advanced management of malnutrition
- Provide technical advice on health promotion
- Provide training on referral and integration of services

Additionally, on-going on the job training will be provided during field visits.

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 sever 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.
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Timeframe

Because this project is a continuity and follow up of previous projects, there was no need to do intensive preparations. However, after receiving the final approval notification from the DCA, the NECC team implemented the previously prepared start up plan. The later plan had efficiently guided the implementation. Immediately

after signing the contract with DCA, NECC teams completed the preparations, procured the needed items, hired the staff, conducted training to the project teams and started the actual field work. Although, the political situation hasn't improved during this reporting period, the NECC management secured all the needed supplies, drugs, equipment and so on.

Recruitment and training of the project staff

The field teams were hired, and started work on November 1st 2011. Three full-time community workers, 2 full-time doctors, three full time nurses, one part time accountant, and one IT part time support person were hired. In addition to the back up support provided by the local consultant, the Medical Coordinator and most importantly by the Executive Director of the NECC. It is worth mentioning that most of the project staff had worked previously in the nutrition project which was implemented in the last three years. Staff working on the project are trained, qualified and motivated.

Guided by a detailed plan, the staff received an orientation program about the new project, project activities, strategies and the operation field manual as detailed later. The experience of the last years' 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. Staff received revised job descriptions and also they received training on their assigned tasks and signed contracts.

Printing health education materials

Two brochures; one about anaemia and the other about malnutrition were re-produced using the material which was prepared two

years ago. 30,000 copies of each of the two brochures were printed and will be disseminated.
Dissemination of health education materials is carried during health education sessions, family counselling and also made available at the health education display cases at the three NECC clinics. Adequate explanation about the content of the material is provided to the family upon receiving the health education materials; but still requires emphasis. Additional two health education materials were designed and printed focusing on sanitation/hygiene and breastfeeding. 60,000 copies of the two brochures were printed and being disseminated.

Procurement of equipment, disposables and drugs

NECC responded to the request of DCA and finalized the required procurement plan in according with the EU regulations. After finalizing the specifications of the requested equipment, procurement took place efficiently. With the extension of the contract for two months, NECC procured more medications especially iron. The NECC used the equipment that are available within the organization. All requested items of equipment were delivered. The list of procurement is included in the table below;

Distribution of procurement items

Item	Purpose	No
Weight scale- children	For measuring wt	5 items
Indicators/sticks for hemocus	For haemoglobin testing	25,000
Medications (antibiotics and multivitamins)	For treatment of sick children	
Iron	For treatment of sick children	30987 Iron bottles
Health education Materials	Designing and printing of health education materials on anaemia and malnutrition	4 Brochures (30,000 copies each)
Cost of lab tests outside (NECC)	Costs of doing laboratory tests outside NECC i.e. Electrophoreses and Hormones	200 Tests

Initiation of the procurement process early; ensured its efficient delivery. Regarding disposables, based on the estimation made, adequate quantities of disposables were procured and delivered to NECC warehouse. Regarding milk, because the budget was limited, we secured a considerable amount from other sources. Procurement of medications took place according to the international procurement guidelines. Contracts were made to procure other services such as lab investigations from outside NECC and the training as well.

Mapping areas

Because this project doesn't include empirical screening, there was no need to do new maps. NECC used the available maps which were prepared before.

Mostly, the project activities were implemented at the three NECC clinics and household visits were conducted only to those who don't present to these clinics regularly.

The NECC teams know the designated areas and the addresses of served population are available at to the team.

Design of work

Clear work processes flow charts were developed; one for anemia 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.
Annual action plan with clear time frame is designed and shared with the staff.

Project monitoring plan

Based on the project concept paper, the project logical frame and the action plan, performance monitoring plan has been developed. 17 indicators 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 data base is crucial to the smooth operation of the project.

Emergency Humanitarian Nutrition (EHN) and Health Response for Vulnerable Children in C							
Activity/time	Nov.2011	Dec.2011	Jan.2012	Feb.12	Mar.12	Apr.12	May-12
Preparation							
General							
Initiating dialogue, negoations and developing consensus among stakeholders							
Preparing mobilization plan							
Reviewing job descriptions for the project staff							
Reviewing field manuals							
Reviewing reporting forms							
Procurement prepartions							
Preparing specifications of equipment							
Procurement and delivery of equipment							
Preparing specifications of drugs, and disposables							
Procurement of drugs, formula and disposables							
Preparing health education materails							
Reviewing existing health education materails							
Finalizing 2 health education materails							
Printing health education materails							
Procuring services							
Contracting with lab services for advanced hemoglobin testing							

Baseline data

Based on the project developed monitoring plan, information were extracted from the data base 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.

Training of NECC and the project teams

A training plan has been developed and being implemented during the project period. Two training days were implemented early in November 2011. An additional one training day was organized in April 2012 and another one in June 2012. Three training days were organized in the last quarter of the project as detailed in the table below. The training included the project implementation team and focused on different managerial and technical issues in nutrition assessment and interventions.
The following training will be provided to the NECC teams and the local experts as follows;

Distribution of training days by topics and anticipated dates

Date	Time	Topic	Trainer	Number of attendants
November 3rd 2011	8-14	Orientation to the new project	Dr Bassam Abu Hamad	10
		Work designs and requirements		
		Lessons learned from first year project		
		Changes in design and implementation		
November 4th 2011	8-14	Work strategies	Dr Bassam Abu Hamad	10
		Follow up strategies		
April 8th 2012	8-14	Provide training on managing and follow up of defaulters	Enam abu Rokba	20
June 24th 2012	8-13	Provide technical advice on health promotion	Lubna Sabah	23
September 9th 2012	8-13	Provide training on advanced management of malnutrition	Dr Mustafa Zaneen	29
September 23rd 2012	8-13	Surveillance of communicable diseases	Dr. Majdi Dheer and Mr. Khaled Abu Ali.	29, two from MOH
December 30th 2012	8-13	Provide technical advice on the monitoring of malnutrition and anemic cases	Dr Wafa Kanan	21

Coordination and integration

As with the previous project, the NECC coordinated with the relevant parties and stakeholders at different levels including:

- Obtaining the approval from the CAP Vetting Committee (WHO-led)
- Officially informing the MOH about the project activities.
- Using the MOH protocols and guidelines.
- Sharing the project strategies with the MOH and Ard El Enssan- a specialized NGO in nutrition.
- Since 2008, agreement was 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 and to discuss other issues such as targeting, treatment modalities, and possible synergistic interventions.
- Coordination with the MOH to conduct further investigations and appropriate management for 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.
- Contacting UNICEF to receive support in terms of iron supplementations (still under discussion)

Program management and control

The commitment and attention that is paid by the NECC senior management to the nutrition projects is constant. The Medical Committee of the NECC endorses programs and oversees 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 Secretary meets all the project teams to discuss progress and challenges.

The local consultant at least visits the field once every week and meets the staff. The Medical Coordinator/assistant visits the field at least twice a week and discusses challenges and problems with the concerned people. The team leaders conduct regular validation visits to ensure that the work has been carried out as required. Daily reports are submitted by each field team to the team leaders. Team leaders submit the daily reports to the management of the project. Reports submitted are appropriately followed and measures taken accordingly.

Coordination meetings with the administrative and technical teams at various levels are done periodically and on on-going bases.

Control measures were strictly developed and followed including;

- Standardized procedures are agreed upon, documented and followed strictly.
- Intensive training was 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 three years.
- Field work reports are reviewed and checked by the team leader, the Medical Coordinator and the Consultant plus the Executive Manager.
- Data entry model has built in control measures-control checks.
- Data from the field are checked, cleaned and analysed.
- Data from the field are checked from logical perspectives.
- The team leaders re-visits houses and documents that in special forms.
- Re-measurement is done at the clinic, for all children referred for treatment.
- Data re-entry to check reliability and validity is done systematically.

Community acceptance

The field work so far conducted indicated that the community is high receptive to the program. Through community 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.

Results according to the project indicators

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

Results According to the Project Indicators

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

Operational definitions

Anemia
It is worth reminding the reader that anemia occurs when the total volume of red blood cells (and/or the amount of hemoglobin in these cells) is reduced below normal values (as defined by healthy populations). Anemia can result from one or more of the following processes: impaired red cell production, increased red cell destruction, or blood loss. As proposed by WHO, anemia is considered to be present if the Hb value is below 11 g/dL for children less than 5 years old. Anemia is classified into three categories according to severity as described in the coming Table.

Adopted Classification of Severity of Anemia (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
Sources: WHO,1997; Dusch, 1996.			

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

Malnutrition

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.

The most commonly used cut-off is the Z-score (below -2 standard deviation). This means that 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 of malnutrition are as following: <-1 Z-score- means mild malnutrition, <-2 Z-score means moderate and -3 Z-score means severe 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

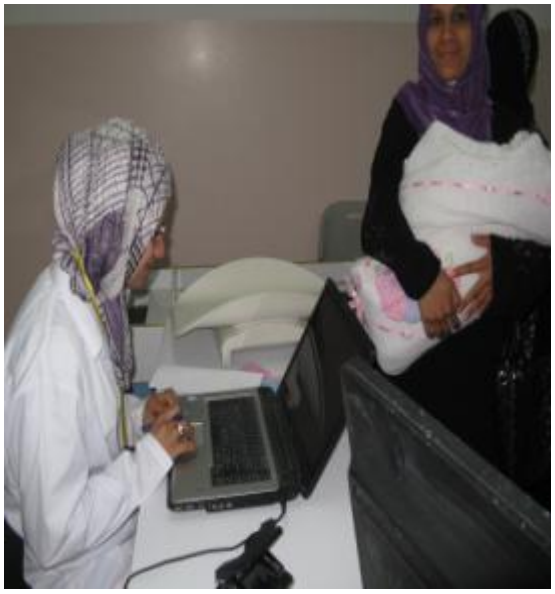
- Wasting is a condition measured by weight-for-height; a condition that results from the loss of both body tissue and fat, in a body; a condition that usually reflects severely inadequate food intake happening at present (Acute malnutrition).

- 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.

Beneficiaries targeted

To ensure continuity of care, thankfully, DCA supported the process of follow up of all cases screened in the last three projects in Rafah, 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 are assessed. Those who found normal are encouraged to join the well-baby program, meanwhile those discovered as anemic or malnourished and enrolled in treatment program. The intension is to support the well-baby services and to ensure that continuity of care is maintained.



The total number of children received well baby services during the project period is 14805 children (Target 10,000). Shijaia ranked first in term of the number of children seen at well baby services. If we calculate the number of children who visited the NECC clinics each quarter together, then the number will be 25496 because some children visited the clinics at more than one quarter therefore double counted. In total, 33236 well baby follow up visits were performed which is higher than the anticipated target of providing 20,000 visits. Also, the most frequently conducted well baby visits took place in Shijaia. During the project period, 7550 new children were assessed at the well-baby service delivery points. Rafah received more new children at well baby service delivery points than the other places (3323), as a result of conducting the field screening last year which helped in recruiting new children who are not used to be regular beneficiaries of the NECC.

Beneficiaries targeted by important variables

Variable	By Locality				By Quarter				
	Shijaia	Darraj	Rafah	Total	Q1	Q2	Q3	Q4	Total
Total number of children attending the treatment program at the NECC three centers (including those admitted previously from the previous projects)	1013	1032	1935	3980	3008	3745	3299	4895	14947
Total number of children attending well baby services	5336	4579	4890	14805	5551	6368	6330	7247	25496
Number of new children visited well baby clinic	2592	1631	3323	7550	1663	2282	1809	1796	7550
Number of well-baby visits	12644	11523	9012	33236	6678	7679	7941	10938	33236
Percentage of	20.09	14.02	26.46						

Variable	By Locality				By Quarter				
	Shijaia	Darraj	Rafah	Total	Q1	Q2	Q3	Q4	Total
malnourished children among those visited the clinic									
Percentage of anemic children among those examined for hg	22.54	37.88	19.67						
Total Number of those examined and found abnormal and enrolled in treatment program	1013	1032	1935	3980	1223	1269	704	784	3980
Number of those examined and found abnormal and enrolled in treatment program from well-baby visits	960	953	1253	3166	754	1056	618	736	3166
Number of those examined and found abnormal and enrolled in treatment program from previous project	53	79	682	814	469	213	95	36	814
Number of telephone calls made	2417	3412	575	15070	2699	4193	5294	2884	15070
Short SMS	2622	2278	4279	9179	-	-	2453	8631	9179
Number of home visits done	766	589	596	3337	201	1587	550	999	3337
Number of calls to bring defaulters	2038	2786	674	5498	1122	1601	898	1877	5498
Number of Home Visits to bring defaulters	411	485	514	1391	9	227	214	941	1391

The total number of those examined and found abnormal and enrolled in treatment programs is 3980 child. The highest proportions of sick children were found in Rafah (1935). The percentage of malnutrition among the attendants of the well-baby visits was around 20% in Shijaia area while it was 14% in Darraj area; the prevalence in Rafah 26.4%, mostly due to difficult socioeconomic status in these areas. The reported prevalence in this year is generally higher than the figures reported last year. The prevalence of anemia was higher as it ranged from 22.5% in Shijaia to 37.8% in Darraj. In Rafah, the reported prevalence was 19.6%. The reported prevalence was higher than the elicited one during field screening as it reflects all the on-going measurements (during well baby sessions); not only just screening children at once during the field screening.

In total, around 15070 calls were made to families of the previously enrolled children in the previous projects (First and second call). In addition, for those who didn't respond, 3337 visits were performed to bring them for the assessment. 5498 calls were performed to bring defaulters in addition to 1391 home visits. SMS services were introduced in May 2012 to remind clients with their appointments. This has

reduced the need for conducting extra calls. In the second half of the project, 9179 SMS were sent to clients which were effective and well perceived by them.

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

Change in cases which had visited the health centers in Rafah, Shijaia and Darraj

Variable	Recovered		Improved		The same		Deteriorated		Total
	No	%	No	%	No	%	No	%	
Rafah									
Anemia									
0-60	24	37.5	11	17.2	22	34.4	7	10.9	64
61-90	39	67.2	5	8.6	11	19.0	3	5.2	58
More than 91	55	67.1	4	4.9	15	18.3	8	9.8	82
Underweight									
0-60	15	41.7	4	11.1	17	47.2	0	0.0	36
61-120	31	50.0	8	12.9	23	37.1	0	0.0	62
More than 120	36	83.7	0	0.0	6	14.0	1	2.3	43
Stunting									
0-60	9	32.1	2	7.1	14	50.0	3	10.7	28
61-120	12	35.3	4	11.8	16	47.1	2	5.9	34
More than 120	13	61.9	0	0.0	7	33.3	1	4.8	21
Wasting									
0-60	13	54.2	4	16.7	7	29.2	0	0.0	24
61-120	36	83.7	3	7.0	4	9.3	0	0.0	43
More than 120	38	92.7	2	4.9	1	2.4	0	0.0	41
Shajaia									
Anemia									
0-60	17	30.4	13	23.2	23	41.1	3	5.4	56
61-90	29	70.7	5	12.2	6	14.6	1	2.4	41
More than 91	85	75.9	8	7.1	17	15.2	2	1.8	112
Underweight									
0-60	12	75.0	0	0.0	4	25.0	0	0.0	16
61-120	22	71.0	3	9.7	6	19.4	0	0.0	31
More than 120	31	81.6	3	7.9	4	10.5	0	0.0	38
Stunting									
0-60	2	25.0	1	12.5	4	50.0	1	12.5	8
61-120	3	21.4	0	0.0	9	64.3	2	14.3	14
More than 120	4	33.3	0	0.0	6	50.0	2	16.7	12
Wasting									
0-60	13	72.2	3	16.7	2	11.1	0	0.0	18
61-120	28	93.3	1	3.3	1	3.3	0	0.0	30
More than 120	39	92.9	2	4.8	1	2.4	0	0.0	42
Darraj									
Anemia									
0-60	13	31.7	7	17.1	19	46.3	2	4.9	41
61-90	28	49.1	7	12.3	16	28.1	6	10.5	57
More than 91	79	**58.1**	8	5.9	37	27.2	12	8.8	136
Underweight									
0-60	3	50.0	0	0.0	3	50.0	0	0.0	6

61-120	11	61.1	0	0.0	7	38.9	0	0.0	18
More than 120	13	92.9	0	0.0	0	0.0	1	7.1	14
Stunting									
0-60	3	50.0	1	16.7	2	33.3	0	0.0	6
61-120	8	47.1	2	11.8	7	41.2	0	0.0	17
More than 120	12	70.6	0	0.0	5	29.4	0	0.0	17
Wasting									
0-60	10	83.3	1	8.3	1	8.3	0	0.0	12
61-120	16	88.9	0	0.0	2	11.1	0	0.0	18
More than 120	20	100.0	0	0.0	0	0.0	0	0.0	20

The rate of recovery is high in anemia particularly in Rafah (38% at less than two months) followed by Shijaia and Darraj (around 31% at less than two months); which is expected to rise further with the staying longer in the program. The recovery rate has increased with the increasing in the enrolment duration in the program as it reached more than 76% in Shijaia at more than 120 days. Limited number of cases had deteriorated and those now are receiving further attention (not more than 11% at the worst scenarios). The least reported deterioration level was recorded in Shijaia (less than 5%).

Similar results were noticed regarding underweight with a recovery rate between 42--75% at less than two months; being the highest in Darraj. At 61-120 days more than 60-73% of cases completely recovered being the highest in Rafah. The recovery rate has increased with staying longer at the program as it reached more than 92% at Darraj clinic with staying more than 120 days. Limited percentage of children were deteriorated (less than 8%). The recovery rate from underweight was the highest in Shijaia.

Regarding wasting, the speed of recovery was higher and ranged from 54-83% at less than two months while it was over 92% at 61-120 days. Also, the rate of recovery in Darraj was highest among wasted cases. None of the cases were deteriorated at any stage after their enrollment. Less than 5% of the enrolled cases reported deterioration in their condition.

Because stunting takes more time to recover than (chronic malnutrition), the speed of recovery was little bit slower; it ranged from 25-33% at less than two months. The recovery of stunted cases at more than 120 days ranged from 33-70% being the highest at Darraj Clinic. The highest reported deteriorated cases was reported in Shijaia are reached 16%. Taking any percentage from the table above illustrates that the recovery rate is much higher than the anticipated.

It is worth mentioning that the above mentioned figures reflects the change in cases conditions which had visited the health centers during this reporting period. Some of them were admitted previously and didn't respond to treatment easily; therefore had distorted the rates of recovery (complicated cases remained in the pool of cases). Talking any figure from the table above indicates that the project indicator of having more than 50% recovery, improvement and/or staying the same.

Health Education and Change in Behaviour

Health education plays an important part in the management of malnutrition. In the previous projects, during home visits, heath education was provided to families particularly to caregivers focusing on malnutrition, healthy food, anemia preventive practices, environmental health and so on. Health education is provided based on the needs of families. Also, during their follow up visits beneficiaries are provided with health education.

It is worth noting that the recruited 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 follows;

- Families are compliant with providing the needed medications particularly iron which is manifested in significant improvement in anthropometric measurements and the positive change in the hemoglobin level.

- Regarding the change in the cases reported to the clinic with sanitary related conditions such as diarrhea, skin diseases and parasitic infestation, in most of these diseases, there is a reduction in the incidence rate of these diseases.

- Also, NECC teams implement pre-test post-test assessment to ascertain the effect of health education in changing mothers' knowledge, attitudes and practices.

Health education is provided to targeted beneficiaries and based on actual needs.

Distribution of health education activities

Variable	By locality				By quarter				
	Shijaia	Darraj	Rafah	Total	Q1	Q2	Q3	Q4	Total
No of focused sessions	368	147	132	647	96	162	152	237	647
Beneficiaries of the focused HE sessions	10328	4572	2542	17442	2406	4800	4688	5542	17442
Counseling sessions	230	185	497	912	47	154	294	417	912
Total health education beneficiaries					**2453**	**4954**	**4982**	**5965**	**18354**

The project staff provided focused health education to caregivers of malnourished and anemic children at least once a week accompanied with food demonstration. In total, 647 sessions were provided with 17442 women participating. The number of sessions and beneficiaries implemented in the last quarter was higher than the previous quarters.

Additionally, 912 concentrated counseling sessions were organized for cases with specific problems at the three centers. 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 100,000 copies of health education materials were distributed.

In Darraj, 147 lectures were provided to women and 4572 ladies had participated. In Shijaia, 368 lecturers were provided to the local community and 10328 women had participated in these sessions. In Rafah, 132 sessions were provided with 2542 women participating. Shijaia implemented health education sessions more than double the work implemented at the other two sites. Currently, NECC staff are working to further develop the health education and to deliver it through non-traditional methods, it is agreed with the team that more diverse no-traditional approaches to be implemented.

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. During the project life, 427 questionnaires were completed with random sample of women who attended the health education sessions. Al Darraj clinic administered more pre-test post-test questionnaires than other places (Shijaia was the worst in this regard). Questionnaires were analysed and measures will be taken accordingly.

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	87.6	93.4
Knowing signs of anaemia	85.2	94.8
Knowing food rich in iron	74.2	90.2
Knowing the timing for complementary feeding	79.6	92.5
Knowing the concept of malnutrition	73.1	85.7

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 87.6% to 93.4%. Similarly, the definition of malnutrition were recognized by 74.2% at the pre-test and significantly increased to 94.8% at the post test. Significant improvement took place regarding knowing food rich in iron and the timing of complementary feeding.

Staff training

As aforementioned, a training course was organized and implemented throughout 2 intensive day training course focusing on work strategies, processes, designs, protocols, work guidelines, counseling, computerized database at the beginning of the project. Staff members from different categories were included. The project plan to implement additional 5 training days was implemented with the contribution of MOH as explained earlier.

Reviewing records and observing performance of trainees indicates that trainees are using the provided knowledge in their practice. Table illustrating the training courses so far provided has been provided earlier.

Drugs and formula distributed

Iron and Milk distributed

Rafah	1 Q	2 Q	Q3	Q4	Total
Iron	1254	1662	1435	1653	6004
Milk	1474	2710	28	905	5117
Darraj					
Iron	1809	2654	2224	3098	9785
Milk	654	944	110	149	1857
Shijaia					
Iron	2289	2366	1889	1931	8475
Milk	1356	950	39	290	2635
Grand Total					
Iron	5352	6682	5548	6682	24264
Milk	3484	4604	177	1344	9609

During the project life, 24264 bottles of iron were distributed to anemic children according to the protocols. The consumption of iron was the highest in Shijaia followed by Darraj and Shijaia. It is expected that the iron consumption will increase by time as a result of the enrolment of more anemic children who require between 4-6 months to be discharged.

Although it is not secured by the provided fund through this project; in total, 9609 cans of milk were distributed to malnourished children aged over than 6 months. The consumption of therapeutic milk was more in Rafah. It is expected that the formula consumption will continue in the next quarter but will decline by time unless extra milk is provided to the project.

Lab tests

Distribution of lab tests performed

Test	Rafah	Darraj	Shajaia	Total	Q1	Q2	Q3	Q4	Total
Urine analysis	453	632	546	1631	360	603	345	323	1631
Stool analysis	780	928	767	2475	486	863	604	522	2475
Complete blood count	294	249	224	767	147	180	182	258	767
Hemoglobin testing in clinics	3742	4983	4823	13548	2860	3504	3846	3338	13548
Grand Total	**5269**	**6792**	**6360**	**18421**	**3853**	**5150**	**4977**	**4441**	**18421**

To assess children presenting to NECC clinics for anemia, hemoglobin testing was carried out for all children aged from 6 months to 5 years presenting to NECC clinics. Anemic children and malnourished one undergo further investigations. So far, the following tests were performed. Hemoglobin testing were the most frequently performed lab investigations (13548) followed by stool analysis (2475) and urine analysis (1631). In total, 18421 tests were so far performed.

The target to achieve 15,000 tests was exceeded. NECC is performing another new laboratory test within its premises related to diagnosing the presence of microscopic blood in stool (occult blood test). Also, signals indicate that the population in the area is larger than what was anticipated. Therefore, it is expected that the frequency of laboratory testing will increase.

Referral

Referral to other organizations

Organization	By location				By quarter				
	Darraj	Shijaia	Rafah	Total	Q1	Q2	Q3	Q 4	Total
Gaza European Hospital	0	0	31	31	2	4	6	19	31
Ard El Inssan	0	0	1	1	0	1	0	0	1
Thalassemia Society	78	68	61	207	17	37	52	101	207
Dorra Hospital	35	38	0	73	1	12	15	45	73
Naser Hospital	30	58	0	88	39	36	12	1	88
Al-Ahli Arabic Hospital	0	3	0	3	0	0	3		3
Al Shifa Hospital	3	6	0	9	0	0	9	0	9
Rimal Clinic	1	1	0	2	0	0	2	0	2
Grand Total	**147**	**174**	**93**	**414**	**59**	**90**	**99**	**166**	**414**

Availability of referral services is an important dimension in the continuity of health care. In total, 414 referrals were issued mostly to Thalassemia society for conducting hemoglobin electrophoresis (207). Referrals to pediatric hospitals also constituted a large volume of referrals. New referrals to undergo culture and sensitivity tests were done at Rimal clinic. 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.

Challenges

- 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.
- Budget provided were limited therefore restricted our activities to the well-baby services. Due to budget limitation, we downsize the number of staff and didn't procure therapeutic milk as in the previous project.
- New generations were born from the time we conducted the initial screening in 2008. It is assumed that many were born and they need to be screened however, budget limitations didn't allow for conducting empirical house to house screening.
- We faced some uncertainty related to the future of this activity which started in 2008. It is unclear to us whether the DCA will continue supporting NECC nutrition program or not.

Deviation from the work plan

The project was implemented on line with the work plan. No reported delays were faced from the start-up 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. 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 promoting the nutrition status of the population benefited from the implemented nutrition projects in Darraj, Shijaia and Rafah in the last three years through rigorous follow up of cases enrolled as well as enrolling new cases which present to NECC clinics.

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 project due to financial constraints. 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 were 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 until malnutrition and anaemia under control.
- 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 haemoglobin. 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 it 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 it 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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