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# Orthopaedic initiative for the Gaza Strip, Palestine

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Knowledge has no borders; wisdom has no race or nationality.

MiST with Edge Hill University, Manchester UK are to start a 2-year project in Gaza, Palestine in April 2010. MiST has been granted the European Gaza Hospital as its base, with hospital now recognized for undergraduate clinical training with funding from the Qatar Red Crescent and Human Appeal International.

Following an initial assessment of all 222 allied health care professionals (AHP's) at European Gaza Hospital by MiST assessors, an individualized diploma programme, taught in modules will start in September 2010 in tandem with start of the academic year in the UK. The modules will be taught through e-learning, local mentors and when the MiST units visit Gaza on a monthly basis for 10 days, the teams will assess the candidates, deliver a tutorial and act as a continuous quality assurance for the diploma course.

Each month a MiST surgeon with an orthopaedic sub-specialty interest will spend 10 days at the European Gaza Hospital. Prior to his visit, patients would have been

collected according to his sub-specialty and the local surgeons with this sub-specialty interest will attend the theatre sessions. The aim is to train the local surgeons in a speciality and they will in turn act as mentors for the other junior surgeons in the Gaza Strip.

MiST and Islamic University of Gaza and Edge Hill University have all signed a memorandum of understanding (MOU), to in effect help deliver an interactive clinical teaching course for medical students.

## Orthopaedic Initiative for the Gaza Strip, Palestine

Mobile International Surgical Teams (MiST, www.m-i-s-t.org) is a charitable organisation (UK Charity Number 1132221) run by volunteers from medical, nursing and allied health care profession (AHP's) backgrounds founded in 2005 in the aftermath of the South Asian earthquake.

The cornerstone of MiST is to help developing countries health care systems through educational programmes. MiST mission statement includes:

1. Teaching and training of allied healthcare professional and medical staff through accredited distance learning diplomas and hands on training.
2. Providing a hip and knee replacement programme for patients that cannot afford such procedures in developing countries.
3. Sending rapid response teams (RRT's) to areas of natural and manmade disasters.

## Introduction

The healthcare of the Palestinians in the Gaza Strip is worse now than it has ever been since the start of the Israeli military

occupation in 1967 (Figure 1). With the recent Israeli military incursions in January 2009, the already fragile healthcare system has been toppled into free fall, creating an acute-on-chronic crisis (EUNIDA, Final Report: Damage assessment and needs identification in the Gaza Strip).

With the deterioration of the political situation, the strict blockade, the suspension of international aid and with the internal Palestinian division, there is a worrying deterioration in many health indicators (UN OCHA OPT report August 2009). The Gazans' healthcare has dramatically deteriorated on two levels: the provision of health services inside Gaza and access to treatment outside Gaza.

The siege that Israel intensified on the Gaza Strip in June 2007 has greatly harmed Gaza's health system, which was dysfunctional well beforehand. Many services and life-saving treatments are not available to Palestinians inside Gaza. Moreover, the supply of medicines, medical disposables and medical equipment to Gaza is significantly delayed. Furthermore, Palestinian internal disputes and frictions between the political factions have affected Palestinian health facilities and led to distortion of work system, lack of accountability, unclear lines of authority, contradictory decisions 'between West Bank and Gaza', unjustified displacement and redeployment of employees with long labour strikes.

With the diminished ability of the governmental health facilities to provide services due to managerial problems and lack of resources (drugs and disposables), the total number of patients presenting to non governmental organisations (NGOs) and the United Nations Refugee and Welfare Association (UNRWA) has significantly increased. This patient shift places more burden on the other sectors particularly NGOs and a challenge for them

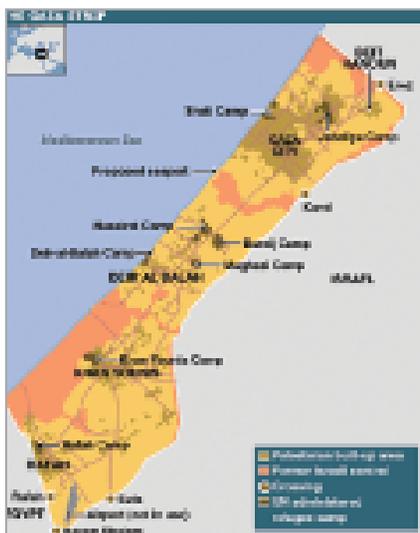


Figure 1: The Gaza Strip

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is to respond to the needs of population by expanding their services and introducing new selective services that are needed without distorting the framework of the Palestinian health system

The lack of medical equipment and medicines for health facilities in Gaza is steadily increasing. The blockade is destroying the public service infrastructure in Gaza. Hospitals cannot generate electricity to keep lifesaving equipment working or to generate oxygen. As a result of fuel and electricity restrictions, hospitals are sometimes experiencing power cuts lasting for 8-12 hours a day. Frequently, a 60- 70% shortage is reported in the diesel required for hospital power generators. Furthermore, increasing use of hospital generators has led to the need for maintenance and replacement, which is mostly impossible given the lack of spare parts or new equipment. The lack of up to date surgical equipment leads to the inevitable complications seen by using inferior implants used for treating common fractures.

This combination of economic and social collapse, and the inability of health services to cope with the consequences of the crisis, has exacerbated the deterioration of the health status of the population in Gaza. The historical and geographical factors, compounded by the current emergency situation, seem to have given rise to a high demand for health services. These demands appear to exceed the capacity of current domestic resources and of the substantial international resources available

Following a number of visits, assessments and meetings with key people in the Gaza Strip, Jordan and Qatar, MiST proposes a long term plan for improvements in orthopaedic surgery in the Gaza Strip.

The funding for this 2-year project has been sought from the Qatar Red Crescent, Doha, Qatar, Human Appeal International, Manchester, UK and private donations to MiST.

### Orthopaedic Manpower

The population of the Gaza Strip is approximately 1.5 million with the majority leading an agrarian lifestyle. Of these, 50%

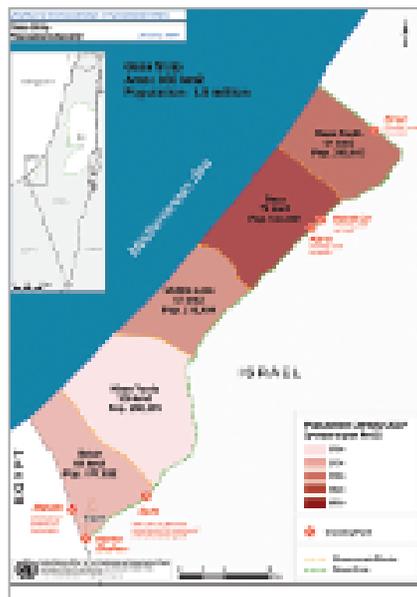


Figure 2: Demographics of The Gaza Strip

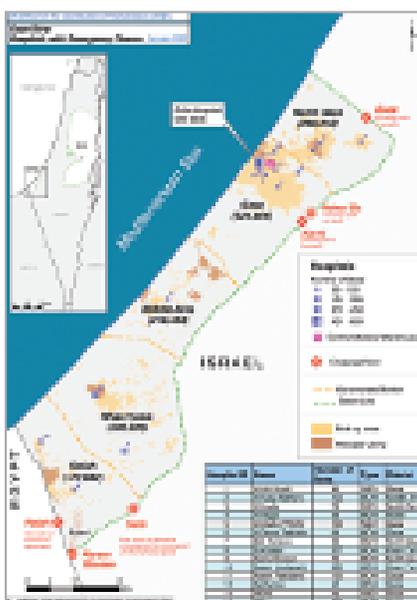


Figure 3: Hospitals in The Gaza Strip

are less than 12 years old (WHO consensus 2007, figure 2, Palestinian Central Bureau of Statistics, 2009). The recommended ratio of orthopaedic consultants per population is 1 per 20, 000 (British Orthopaedic Association ?????? ref required please). Thus, a total of 75 orthopaedic consultants, with their respective teams of junior doctors and trainees would be needed for a

population of 1.5 million. Currently, many of the surgeons in Gaza both work in Ministry of Health (MOH) and NGO hospitals, so the true number of specialists is underestimated in the Gaza Strip. The number of orthopaedic consultants is 10 in the Gaza Strip (*personal communication, MOH*), so a deficiency of around 65 surgeons exists. MiST and the MOH are aware that the project to improve orthopaedic services in Gaza will take time to achieve fruition.

MiST proposes to train hospital personnel at two centres, European Gaza Hospital, Khan Younis in southern Gaza Strip, which is a 200-bedded institute and *Waffa Hospital*, in Gaza City (Figure 3). *Waffa hospital* was damaged by missiles during the war in 2009; one of the theatres is undergoing refurbishment and this is to be made into a clean air theatre by using laminar flow tables. *Waffa's* main function is as a rehabilitation and pain treatment centre with some limb reconstructive work performed there.

The *European Hospital* is a MOH Hospital built in the 1990's with a grant from the EEC. The hospital now has links with the IUG medical school with medical students spending their clinical attachments at this facility. MiST proposes to develop the EGH into a 'Centre of Excellence' and a Level 1 Trauma Centre. The other Level 1 trauma centre will be located in the north of the Gaza Strip, at Al Shifa Hospital, Gaza City.

MiST with the MOH has identified lead surgeons in spine, paediatrics, upper limb, joint arthroplasty, and limb reconstructive surgery. These five surgeons will be taught surgical techniques at MiST base hospital on a weekly rotation. Similarly, the allied health care professionals will be taught at these base hospitals through continuous professional development (CPD) modules and top-up degrees and diplomas (see later).

Visiting MiST units will be having a sub-specialist interest in an area of Orthopaedics. Patients and cases for review by this visiting team will be collected well in advance of their proposed visit. The details of the cases to be operated on will be sent to the visiting surgeon so he/she and the team are aware of what to expect. The identified lead local surgeon for the sub- →

## Orthopaedic initiative for the Gaza Strip, Palestine

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speciality interest will attend the theatre sessions at the EGH when the MiST unit visits. The ideology is that in turn, these locally trained surgical mentors will pass on their skills and knowledge to their juniors. When visiting the EGH, these local surgeons will also be exposed to a different way of working and patient pathways introduced by MiST. It is hoped these good practises will be transferred to their own base hospitals in Gaza.

MiST intends to teach a Masters in Orthopaedics (MCh Ortho) as a distance-learning course in 24-modules over a 2 year period. The course will cover all aspects of orthopaedics and will help the candidates prepare for their Palestinian Board exit examinations. Each MiST Unit, when visiting Gaza will run a monthly tutorial according to the preset syllabus, over the 2-year duration of the course. External examiners for the end of course examination have been recruited and the degree will have quality assurance and accreditation as one would have in the host country, England. This will assure the candidates of the robustness of the Degree and its subsequent recognition.

In addition, Orthopaedic courses will be taken to Gaza including the basic and advanced AO fracture fixation course, limb deformity planning course, external fixation courses and the ATLS/APL/ACL courses. These courses will bring the Orthopaedic surgical fraternity of the Gaza Strip up-to-date with the surgical developments and techniques of how to perform procedures safely and introduction of new trauma devices.

### Allied Health Care Professional's Teaching and Training

There is a real need for the training and continuous professional development of AHP's in the Gaza Strip. Modules in Paramedics, Operating Department Practitioners and Nursing will be taught through E-learning, telemedicine lectures and hands-on training with monthly tutorials at the EGH, planned to commence September 2010. The degree and courses for health care professional will be run from Edge Hill University, who are now formally linked with the Islamic University of Gaza.

The protocols and pathways for patient management will be delivered by MiST through the local EGH 'working party' after approval. Each MiST unit will provide a continuing education and training in theatres and the wards with the standard established for the local staff, in co-ordination with local Head of Nursing. These measures and continual assessment will help maintain nursing standards and achieve the goal of making EGH into a 'centre of excellence' and reference centre for the Gaza Strip.

Our initial plan is to perform an assessment of current 222 nursing staff at the EGH. An individualised teaching programme will be established for each candidate, including the number of modules needed for each staff member. Local mentors will be identified at the host institution to continue and provide help for these candidates. In essence, we will be 'training-the-trainers', with MiST and EHU providing back up and support both via the Internet and teams visiting Gaza. More importantly, these MiST units visiting Gaza will provide a quality assurance for the diploma course, ensuring the same standard of teaching and training as in the UK. This approach will provide a sustainability and ownership by the local authorities of the importance of AHP training.

### Pain Management and Rehabilitation Service

The MOH has agreed to introduce the use of opiates for pain control in the Gaza Strip. MiST will provide all the necessary protocols and proformas and will conduct an audit into the use of opiates. With the local clinicians, MiST would like to develop the chronic pain service in Gaza based at Al Waffa Hospital, Gaza City. Currently, the pain services in Gaza is in its infancy and there are many patients with metastatic bone disease, chronic disabilities and amputations in need of modalities to help reduce pain and improve function.

It is at this institution MiST would like to introduce the Jaipur foot. The Jaipur foot technology is simple, reproducible and easily transferable and inexpensive (\$30 each) and has proved to be a functional way of treating amputees in developing countries. Our team from India will arrive for a 14-day visit to teach and train local

technicians the art of making the prosthesis from locally available materials. Subsequent 3 monthly visits are planned to continue the monitoring and developing the local skills. The Jaipur foot works very well in patients who culturally need to squat for activities of daily living including rituals of prayer.

### Medical Undergraduate Teaching

The IUG and MiST understand that the medical students of Gaza Strip are the future for this area. For this reason, it is important to provide adequate clinical skills training. Moreover, MiST proposes to train the local clinical trainers in the Teaching Hospitals with the help of the Postgraduate and Undergraduate Deans. This will be achieved through 'training-the-trainers' courses, establishing PBL sessions and helping develop clinical examination through hands-on teaching and telemedicine.

In addition, MiST is establishing links with IUG and a UK Medical School, which will help in exchange of knowledge, staff and students on elective periods.

### Databases

Many of the Institutions visited in Gaza do not have adequate records. Nor are the radiographs clearly labelled, dated and sided. Audit and morbidity and mortality meeting were lacking amongst Hospitals. The need for audit must be driven centrally by the MOH, to ensure good standards amongst all hospitals in the Gaza Strip. Gold standards for infection control must be instigated from the MOH and audited on a regular basis.

MiST would like to introduce **TARN** into Palestine (Trauma Audit and Research Network, appendix 1). Hope Hospital, Salford UK is the centre for TARN in Europe and we propose to send researchers out to train the local data in-putters. This audit would help the MOH develop Emergency services and divert funds to those areas most in need. This audit and others to be performed by Edge Hill University will also give our organisations information as to whether any improvement in services has been achieved.

## Other Specialities

A *similar model* as described above could be used for other Medical and Surgical Specialities and MiST has sent in proposals to MOH for ENT and Urology training programmes.

## Summary and Conclusions

The current challenges facing the health care system are best described as "acute on top of chronic", where the Palestinian health system has suffered for long years from scarcity of resources, plurality, lack of coordination and integration, unclear roles of the MOH and lack of strategic direction and leadership. The described above feature has demonstrated itself in the widely perceived fragmentation, inequity of services availability and provision, duplication of services, increasing vulnerability of population and fragility of health institutions, and threatened chances of sustainability of the Palestinian health systems with its four major players particularly the NGO sector. This combination of economic and social deterioration and the inability of health services to respond to the consequences of the situation have exacerbated the already dire health status of the population of Gaza and necessitate rapid interventions (EUNIDA, Final report: Damage assessment and needs identification in the Gaza Strip, March 2009, ECESG, January 2010).

With the proposals for teaching and training MiST has suggested, we hope to help improve the Orthopaedic and nursing services of Gaza, in collaboration with the Ministry of Health, the Islamic University of Gaza and the sponsors, Qatar Red Crescent and Human Appeal International.

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## Appendix 1

### TARN, Trauma Audit and Research Network

With better understanding of the severely injured patients through audit it has been possible to:-

1. Enhancing pre-hospital care, ensuring appropriate medical intervention
2. Rapid transfer to the best local facility
3. Assessing the use of helicopters
4. Adopting ATLS principles
5. Integrating trauma services within and between hospitals
6. Investing in rehabilitation services
7. Auditing and researching injury and system of care