

## Inside Gaza's Al-Shifa hospital

Norwegian doctors Mads Gilbert and Erik Fosse, who have worked on and off in Gaza for over 20 years, report on the unfolding crisis and conditions inside the Al-Shifa hospital, Gaza City.

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On the morning of Jan 10, light and heavy machine-gun fire is getting closer to Al-Shifa hospital, after a night of intense bombardment, much heavier than previous nights. We pack our limited luggage.

On Jan 8, we also had to pack to participate in a 16-ambulance convoy to Egypt to evacuate war casualties for much needed follow-up treatment. This convoy to the Rafah border was coordinated with the International Committee of the Red Cross (ICRC), who further coordinated with the Israeli Defence Forces. We accompanied one patient each together with a Palestinian nurse. Both patients had undergone lifesaving surgery at Al-Shifa hospital and were now intubated intensive-care-unit cases. One was a 15-year-old boy with severe maxillo-orbital blast with exploded eyeballs, both of which needed removal. He spoke as he was admitted 2 days earlier and should have a fair chance of survival. The second was a man with thoracoabdominal

injuries (liver and intestinal ruptures). They were marginally stable, and the remaining 14 ambulances also had serious war injuries needing hospital treatment abroad.

The convoy was led by a large white ICRC truck clearly marked with ICRC insignia and a white ICRC car carrying two ICRC flags. All 16 ambulances were uniformed and ran their flashlights. When approaching Netzarim south of Gaza City on our way to Rafah, the convoy halted for a moment, when machine-gun fire erupted across the road just in front of the ICRC truck. Moments later, a new round was shot, very clearly telling us not to proceed. Each vehicle in the convoy turned on the narrow road before rushing back to Al-Shifa only to reoccupy 16 badly needed beds.

The nightmarish havoc continues. In Gaza, the wasp-like noise from unmanned Israeli aircraft constantly fills the air while the almost rhythmic bombshelling splinters the night as

this is written, sitting in our quarter in a ward on one of the worn out, rusty beds of Al-Shifa hospital. The sound of the bombshells dropping varies from a distant boom to extremely loud blasts, as they land in the distance or close by.

This morning (Jan 10) a rocket was fired on a townhouse with a kebab outlet just 200 m from the walls surrounding the hospital. The blast was deafening and for a moment the green paper sheets, taped on the hospital's broken windows to keep the chilly winter out, billowed like sails from the shock wave, and the whole hospital shook. Minutes later the casualties were rushed through the hospital gate and through the doors of what currently must be the world's most filmed emergency department. The local camera crews and photographers hedge like seagulls waiting to catch a glimpse of the drama, the faces of agony and pain belonging to the hundreds of people that are carried through the entrance to the emergency.

### Living hell

From our arrival in Al-Shifa hospital in Gaza City on the afternoon of Dec 31, 2008, until this morning, we have witnessed the most horrific war injuries in men, women, and children of all ages in numbers almost too large to comprehend. The wounded, dying, and dead have streamed into the overcrowded hospital in endless convoys of ambulances and private cars, and wrapped in blankets in the caring arms of others. The endless and intense bombardment from Israeli air, ground, and naval forces have missed no targets, not even the hospital.

When we arrived, nearly a week ago, we saw two graphic scenes that should come to symbolise the situation for Gaza's hospitals and health care: the shattered windows of the hospital



Mads Gilbert

Doctors treat multiple casualties in Al-Shifa hospital's emergency department on Jan 3, 2009

caused by a blast from a bomb that hit the mosque across the street the previous day, and a long stretch of mourning family members and colleagues carrying the dead body of Ihab Madhoun—a 30-year-old doctor—who had been fatally wounded by Israeli rocket attacks on the ambulance that he and his paramedic partners were driving to collect war casualties on Dec 31, 2008. One of the paramedics died immediately, while Madhoun died after a few hours in Al-Shifa hospital.

These scenes sum-up our core experience in Gaza: a shattered, attacked, and drained health-care system trying to help an overwhelming amount of casualties in a war between clearly unequal powers, where the attacker spares no civilian lives—be it man, woman, or child—not even the much-needed health workers of all professions.

Despite our fairly long experience working in war zones in general, and the Occupied Palestinian Territories and Lebanon in particular, we were quite overwhelmed by the current conflict in Gaza. The number of wounded admitted following the around-the-clock waves of bombardment would be enough to overcrowd even a well-functioning 500-bed western hospital. Al-Shifa hospital and its staff do not have such capacity—they were already in a crisis before the war started. We both visited Gaza several times on different missions in 2008 (teaching health infrastructure projects) and have seen the serious effect the Israeli siege has had on Gaza over the past 2 years.

The Gaza Strip is only about 45 km long and 5–12 km wide. This 360 km<sup>2</sup> land is extremely densely populated (4119 inhabitants per km<sup>2</sup>) with five cities, seven large permanent refugee camps, and only 24 km<sup>2</sup> of potentially productive farmland. Among the population of 1.5 million inhabitants, about 1 million are registered UN refugees.

Gaza is like a cage, an enormous prison or a completely sealed off ghetto,

with 1.5 million Palestinians forced together on a very small piece of land. They have been denied any possibility for flight. They can go nowhere but into the streets or fields of Gaza, where the danger of being fired at is even greater than at home. The mosques are very unsafe—18 have been bombed so far by the attacking Israeli forces. There are no bomb-rooms, no early warning systems, or civil defence. The poverty is striking: 80% of people live below the UN poverty line, 80% are currently unemployed, 50% are depending on food from the UN Relief and Work Agency for Palestinian refugees (UNRWA), established in 1948, and now the oldest refugee organisation in the UN.

### Al-Shifa hospital

Al-Shifa hospital in Gaza City consists of a white, five-storey central surgical building and several pavilions for the medical specialties. The hospital has been the key centre for the Palestinian population living behind the Israeli barbed wire fences and high concrete walls, which form a 51 km border with Israel, a 11 km closed border to Egypt, and a 40 km long beach, closed off by the Mediterranean Sea.

The hospital has 1011 employees, seven clinical entities with about 406 medical doctors in various specialties, among them seven surgical specialties. The six operating rooms (ORs) are of medium quality with a lot of worn-out equipment such as OR tables, anaesthesia machines, and monitors. What could have been a modern university-like hospital is, however, reduced to a completely worn-out, almost makeshift, field hospital after years of siege, as well as a lack of maintenance and upgrading.

We have been working in and with the staff at Al-Shifa since the mid-1980s, and have seen the gradual decay of the facilities on all levels. The long-standing siege of Gaza has led to a critical shortage of nearly everything from essential infrastructure such as

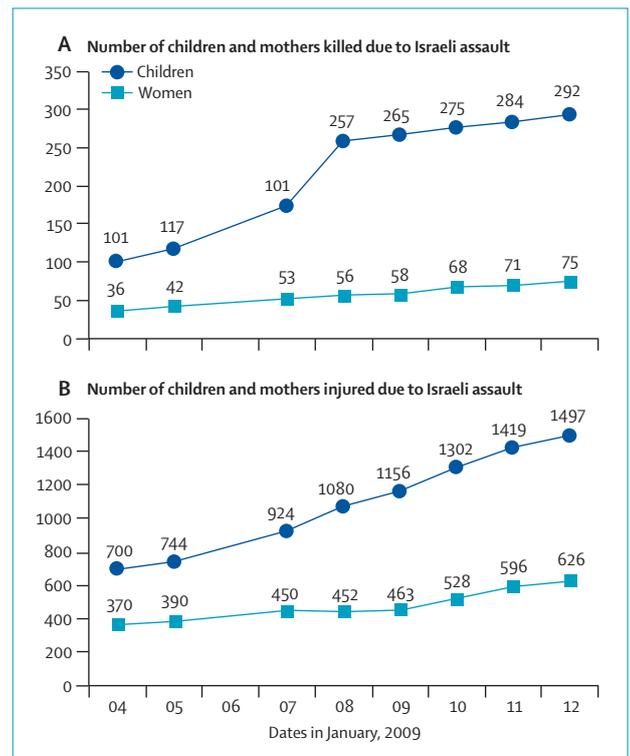


Figure: The numbers of children and mothers killed (A) or injured (B) by Israeli assault in Jan 2–12, 2009

Source: Ministry of Health, Gaza.

lifts, ventilation systems, and power supply, to patient-handling systems such as OR tables, beds, trolleys, and all types of medical equipment. During the past 18 months of harsh siege on Gaza, the supply lines to the hospital have completely dried-up.

The clinical work is severely affected by the shortage of supplies and equipment: lack of functioning trolleys to transfer patients, beds, disposable oxygen masks (we use small paediatric face masks as partial face masks), stylets for endotracheal tubes, scissors to quickly cut the clothes off the injured (we use small scalpel blades), monitors, ventilators, small pulse oximeters, and blankets.

### Trauma management

Some 360 surgical operations have been done in ORs—and outside—during the first 13 days of attacks.

The surgical block consists of a basement with the radiology department, a reception area, and an

**Panel: Paediatric cases seen by Mads Gilbert in Al-Shifa hospital**

**Joumana Samoni**

I saw 9-month-old Joumana Samoni for the first time in a ward in Al-Shifa hospital at around 3 pm on Jan 5, 2009. She is from a large family living in Zaitoun in the middle of Gaza. Her father, grandfather, and grandmother had been killed along with 26 other family members by a missile. Her mother had disappeared.

Joumana was brought to Shifa where a partial amputation of her left hand was done due to extensive complicated fractures with bleeding.

Joumana was with her surviving grandmother who told me that members from ten Samoni families were forced by Israeli Defence Forces to gather in Joumana's house before the bombing. Three children escaped, the others were either killed or remain in the area. Some were buried under the shattered house.

**Salmah Abed Rabu**

4-year-old Salmah Abed Rabu was hit by fragments from Israeli rocket bombs when they targeted her family house in Beit Lahia. She was evacuated to Al-Shifa where she arrived in the afternoon of Jan 8. The attack probably took place during the 3-h Israeli "cease-fire" on the same day.

Salmah had a large shrapnel injury to her back and was awake but paraplegic after the attack. She was immediately taken to an Al-Shifa operating room (OR) where she underwent neurosurgery with laminectomy. Her mother or other family members could not come to the hospital due to the aggressive Israeli military attacks in the area.

I saw Salmah on her way to the OR the afternoon, and in the Special Paediatric Department at midnight. She was awake, still paraplegic, and quietly whispered "mama, mama, mama" continuously. She was comforted by the other women in the room, relatives of the other children.

**Essidi Sarzuhr**

6-year-old Essidi Sarzuhr was hit by Israeli bomb fragments when seven Israeli rockets hit the front of his house on Jan 7. The family lives in Sabra, Gaza.

When I saw him at Al-Shifa hospital's Special Paediatric Department he had extensive abdominal injuries and had undergone emergency lifesaving laparotomy and had a chest tube placed due to fragment injuries also of the chest.

The authors note that given the disastrous situation, there may be minor errors in these stories, but not in the facts about the types of wounds and medical conditions.

emergency department; a first floor with two orthopaedic wards; a second floor with six ORs and a recovery unit with six beds; a third floor with one general and one paediatric surgical ward; and a fourth floor with one general and one shared surgical ward (maxillofacial, neurosurgery, plastic surgery, urology).

All patients are received in the reception area on the ground floor at a registration point. The patients (often with family members and a swarm of TV cameras and photographers) enter directly from the outside unloading area to the ground floor reception area. Here, six beds on each side of the room are equipped with oxygen, some with suction, but none with monitors. No beds have electronic monitors for vital signs, some have manual blood pressure apparatus. Next to this area, there is an emergency room (ER) with two beds well-equipped with disposables, drugs, and chest tubes. To reach the OR, patients triaged for surgery are transported on trolleys, if available, or in an adjacent single-bed lift.

The reception area has doctors, nurses, and a large number of volunteers ready to receive wounded people when bombing is reported. The ambulances mainly do "load-and-go", and about two-thirds of patients arrive in ambulances, the rest arrive in private cars. One senior surgeon, who serves as triage officer, and several other doctors work together with nurses and volunteers to assist each patient, undressing them and surveying their injuries. A note-sheet follows the patient. Priority tags are not used. Few patients have their vital signs recorded. Unconscious and seemingly unstable, wounded patients are taken to the ER, while several patients who are triaged for immediate surgery are taken directly to the OR. This means that there is case congestion in the OR and patients have to be lined-up in the central hall. Often two patients are accommodated in one OR for lifesaving surgery, and many are operated on in the OR hallway.

Only trauma cases are operated on, all other surgery is suspended and patients are transferred to other hospitals in Gaza City (QI Quds hospital and el Ahli Arab hospital). We have no systematic statistics on the types of surgery that have been done. We have participated in several vascular procedures mostly on the lower limbs

and many amputations, often bilateral and most above the knee. We have also done some triple amputations and several laparotomies with both liver and intestinal fragment injuries.

Each OR is equipped with one table and several OR lights, but many of these are not working. The power from the hospitals two generators is fairly stable, but blackouts are common and often quite frequent but short lasting. The staff have no headlights or spare torches, and use mobile-phone lights if needed.

**Casualties**

As of Jan 12 at 4 pm, Israeli attacks on Gaza have injured more than 4250 people and killed 910—50% of these deaths are women and children (see figure). 1781 children (younger than 18 years) have died in the conflict, 626 of whom have been killed, and 1497 of whom have been wounded, by Israeli military forces.

The killed and injured men that we have seen in the hospital has also overwhelmingly been civilians. As of Jan 10, 340 casualties were dead on arrival to Al-Shifa, and the registration of people with war injuries has reached 1039. The numbers of people injured are probably an underestimate, since some people with minor injuries that can walk probably leave the hospital in overcrowded and chaotic situations.

As of Jan 12, 12 Palestinian ambulances, with uniformed personnel from Gaza's Ministry of Health and other medical-emergency services, have been targeted by Israeli forces, killing 11 health staff. Another 22 health professionals have been injured. Neither health professionals nor civilians are safe in this devastating conflict.

The morale, strength, and tireless work done by the health workers in Al-Shifa and all of Gaza to save the injured from death is beyond belief. We have a profound respect and admiration for our colleagues and all the health workers in Al-Shifa hospital.

*Mads Gilbert, Erik Fosse*