

Medicine amidst genocide in Gaza: An interview with Bilal Irfan

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The World Socialist Web Site recently interviewed Bilal Irfan, a Harvard masters student who has assisted in researching the harrowing medical conditions in Gaza in the midst of the Israeli genocide.

Benjamin Mateus (BM): Bilal, can you tell us about who you are and how you became politicized in the anti-genocide campaign?

Bilal Irfan (BI): I'm an undergrad from the University of Michigan and am presently doing my masters in bioethics at Harvard Medical School. I'm very involved in research and a host of medical issues, but I'm also very interested in health policy, specifically political policies that impact medicine. More recently my focus has shifted to armed conflicts and the impact on health issues.

The views expressed herein are my own alone and not reflective of any organization I have been involved in. The points I present here are informed from the sum total of multiple different strands of work, organizations, and people I have met and interacted with.

I visited Palestine when I was much younger. I saw the day-to-day realities of life under occupation, what is termed as an apartheid system by the ICJ, Human Rights Watch and Amnesty International. Witnessing all that at such a young age fueled a passion for me to care about things beyond the domestic borders of the US and think about how I am involved as a global citizen, and care about the issues happening in the world around us.

And I think that was the initial spark that drove me to the issues in Palestine.

BM: You also work with FAJR Scientific. Who are they and what do they do?

BI: They are a medical NGO [established in 2019], a nonprofit that sends medical missions to poorly served and resourced environments. Their leadership is predominantly Palestinian, and Palestine was already, prior to October of 2023, a heavily under-resourced environment. For instance, they sent a medical mission to Gaza in August of 2023 and a smaller one prior to that in the West Bank in 2023. During the present escalation of hostilities in Gaza, they have sent several emergency medical missions in April, May, June, July, and most recently in October. I think some of their surgeons just left last week for Gaza, others are still on the ground.

And they've also sent an emergency medical mission to the West Bank and Lebanon. They're planning to expand further to other countries in conflict and non-conflict affected zones where there's a huge scarcity of medical resources. A huge part of what FAJR does is beyond some of the typical ideas of a medical mission where you just send rotating teams to provide care.

A huge part of it is also training the local staff and teaching them things like surgical techniques or acquiring the capacity to build systems; all very comprehensive. In August 2023, they initiated a plan called the "Fifty in Five" or something like that, which was to propel Gaza's health care system ahead 50 years in just five years.

I know they had worked at some of the different hospitals like Al Shifa

and others in Gaza City and others. They had invested money in repairing the healthcare system and bringing in supplies. Even when we were in the West Bank, we pitched in to assist local staff and facilities repairing equipment, what have you, to bring the system back into operation. Eventually we were able to begin administering the necessary health services including performing surgeries.

So, a part of it is building the physical infrastructure, but also that didactic learning with the medical students, with the staff, involving them in research, teaching them about data collection and the benefits of organizing and publishing their data which helps them not only academically and professionally, but also allows the voice of Palestine from a medical sense be represented in the global medical community.

Israel blocking medical missions to Gaza

BM: I heard that Israel recently banned several medical missions from entering Gaza, including FAJR Scientific, and Israel's Knesset also passed legislation to ban the UN relief agency for Palestine refugees, UNRWA, from conducting operations there. What is the ramifications of these developments for the people of Gaza?

BI: Yes, the *Washington Post* and some of the other channels just reported that. If I'm not mistaken, Israel denied entry to eight medical NGOs.

I'd like to contextualize this point first. Previously you had seen bans or, more accurately, a denial of entry, so not an outright ban. They've denied entry to physicians and surgeons over the last couple of months in varying frequencies. What is interesting is that after the military ground invasion of Rafah in May, and the closure of the Rafah border with Egypt, that has exacerbated the situation with denials having become more frequent. Teams have been forced to become smaller and the time that one must allocate lengthened. What does this mean? Let's say a physician or surgeon who is based in the US will find it difficult to get time off and then maybe for just one week or possibly two. That was usually sufficient in the past to come into a medical mission. I know several people who went in the beginning months of 2024 for shorter durations.

But then, arbitrarily, the requirements [by Israel] became that you must go for four weeks, a whole month essentially. That is a huge chunk of time for medical professionals to be able to block off from work and sometimes it's just too much as it can have considerable psychological and physical toll on them to undertake such a lengthy mission.

To add on to that, from what we have seen, medical members of Palestinian origin have been denied entry since the Rafah invasion when previously there were only some restrictions placed on Gaza ID holders. But now anyone of any traceable Palestinian descent is being denied entry.

That has restricted medical teams because many of the physicians and surgeons interested in going to Gaza are understandably Palestinian-Americans or people who have ancestral connections to Palestine.

Since this October, we have been seeing the beginning of outright entry denials of many organizations. And this is while we already had a team on the ground. These are proving very challenging for coordinating these missions. Possibly this might be the last time that we'll be there for what is conceivably a considerable time. But something could suddenly change and two weeks later those denials might be temporarily lifted. Who knows? It's hard to predict how all this will pan out. That's the situation when it comes to medical NGOs.

And then the other point you mentioned is UNRWA.

UNRWA is uniquely vital for the survival of Palestinians. It is a life-sustaining resource for Gaza and the West Bank, not only the critical health care that they provide, but the host of humanitarian relief projects that include education.

If you look at some of the English literacy rates in the West Bank and Gaza, they're exceptionally high despite the barriers to education. English has become, for better or worse, a marker in many parts of the world as a sign of being educated and allows one entry into the international global system, where, at a minimum, you can participate in it. And the Palestinian students that I've worked with often displayed better grammar and writing skills than many of my peers in the US.

There's another aspect to what UNRWA provides beyond education. It also provides something essential, dedicated to the uniqueness of the ongoing fight of the Palestinians for their rights. There are so many different refugee crises around the world, but there's the longevity of this one, the severity of this one, the types of crimes that have been committed against this population for 70-plus years.

UNRWA is that one lifeline that has preserved core functionaries for this besieged population for the entire period of their occupation. And I think the banning of UNRWA is catastrophic. And when the Knesset was passing some of their first reads of the bill back in the summer, I was in an UNRWA facility at the time, the day it was passed. It was quite alarming to even conceptualize that possibly tanks could drive in at that moment into where we were situated.

And who are these people? They are pediatricians and other doctors who work under the umbrella of UNRWA, which I think is being branded potentially as a terrorist organization. I'm not sure exactly what the exact classification that they're giving from a legal standpoint, but it is alarming, nonetheless.

BM: With this in mind, the forced evacuation of northern Gaza, the "Generals' Plan" as the Israelis have called it, do you have any information on what's happening on the ground? The images from the region are horrific.

BI: The idea of forced internal displacement is nothing new. Where are these people to go?

We had seen even as far back as in October of 2023 evacuation orders to the south, and then from the south go to the middle areas, and then smaller and smaller areas that have been labeled as safe zones. But even in these safe zones, there have been airstrikes many times over. And these have been repeated with such constant occurrences I don't think it even requires further mention of the absurdity of these terms and the real intent of Israel's "plan."

When it comes to the situation of northern Gaza, reports indicate that there's probably around 400,000 people trapped over there. According to the press, Israel has declared them enemy combatants and legitimate targets because they didn't evacuate.

But I think one must first understand, how does one evacuate from there? There are multiple checkpoints that block movement across the Gaza Strip. The level of destruction and lack of infrastructure to support the population make such an endeavor seemingly impossible.

Even ambulances, based on my conversation with some of the local healthcare staff, must navigate treacherous roads and situations just to make it to a patient and then evacuate them through these same red zones while coordinating their movements with the military authorities.

Oftentimes they are denied passage. Sometimes at these checkpoints their EMTs are strip searched, handcuffed, arrested, abducted or the vehicles are blatantly shot at, if not struck by drones or military aircraft. All these restrictions limit their ability to reach a certain hospital. And, if by some miracle, after crossing all these hurdles, they have reached the hospital to transport or evacuate a handful of patients, they must go through the same process taking these patients to another facility. But then the question becomes, which facility are they going to move them to?

For example, there's a new neonatal facility in the Kamal Adwan Hospital in northern Gaza ... There are very few facilities left in all of Gaza that can handle issues related to maternal health care or infants. That is so difficult now in the Gaza Strip just with the level of destruction that you see. Many are being transferred to the Al-Ahli Arab Baptist Hospital in Gaza City.

Theoretically, this is not too far away. But what is the state of these "facilities?"

For instance, the partially operational Al-Shifa Hospital is a misplaced euphemism. After its complete destruction, Palestinians, through their utmost resilience, have worked together to reopen aspects of the destroyed hospital, even if that is just one treatment room where patients can be seen by a provider. It feels wrong, though, to even call the place "Al Shifa Hospital" just because it hasn't been completely wiped off the face of the earth. But this is what they mean by a "partially operational" hospital.

I think that it's important to contextualize this when we use this word "partially operational" facility. And obviously there's degrees to it, depending on which hospital we're talking about.

In my conversations with many of the healthcare staff at these various hospitals, not only are they besieged, but they are also starved. They're talking about sending texts as if it will be their last. They write things like, "If I was not able to see you right now, then I hope I see you in the afterlife." They're sending texts asking for their final message to be shared with the rest of the world or that this may be the last time they would be able to communicate with anyone again.

This includes the nurses and the doctors and administrative leadership although I cannot get into some of the specifics of it for fear of their safety, and many of them are quite afraid of their names being publicized. Some of them aren't, but some are, understandably so, due to the risk of reprisals against them for speaking out.

There was one instance of a nurse at one of the hospitals. She texted something along the lines that there wasn't enough food being delivered. But she grew worried that the way she said it in Arabic could have been interpreted as a critique of the other hospital staff for not properly rationing the food. Or more accurately, that she was ungrateful towards the humanitarian agencies.

She profusely apologized to me, again and again, and I had to reassure her that everyone understood her concerns and she was not trying to criticize the humanitarian agencies even though they have the right to complain about our utter failure, all of us collectively, as a global community, to address their urgent needs.

You must really think about the level of desperation that is being felt if she's going out of her way apologizing to me three or four times. I know she might not live to see the next day just because she hasn't drunk water for the last two days. I don't even know how she has the energy to even text. It's these types of issues that are unfathomable.

And then, with Dr. Hussam [Abu Safiye], who is the director of Kamal Adwan. He recently lost his son. He was praying over him in this widely publicized scene leading his funeral prayers. Dr. Hussam has facilitated some of the evacuations, but they're so difficult to do, and he is one of the

two remaining physicians in Kamal Adwan Hospital.

And they still have patients left in that hospital, completely besieged, completely starved. There was one delivery of medical supplies, and the hospital staff put it on the third floor. There was a precision strike on that same third floor just shortly after that destroyed most of those medical supplies, and some of the remaining hospital staff got burns on their hands and their fingers trying to put out that fire. I mean, the sheer cruelty of first besieging and starving the population and then allowing the smallest trickle of a supply, which is likely just for public relations, and then immediately turning around and destroying it. How cruel is this? And this is a recurring theme.

Even in my own travel to Palestine I've witnessed this. The level of cruelty being imagined. It's so creative. They are spending time thinking about the uniqueness of their crimes that they want to inflict on this population or even on an individual in this case.

Dr. Hussam is a pediatrician. He and his team just performed surgery—I'm not exactly sure whether it was GI surgery—but they performed procedures that he did not have the medical expertise to do. But he was performing it because there was no one else left to do it and the child needed it. People around the world were sending him texts expressing their appreciation and offering their congratulations for what he had accomplished. And just a week prior he had lost his child. Yet, he is still giving support to many of his staff who have lost their own family members, their loved ones, and their fellow coworkers.

Many of these same people are trying to capture these scenes on their phones. They're trying to provide explanations of what is happening, who they are, show their faces, speak their names and the hospital they are working at, in the hope that these clips will reach a policy-maker out there who might raise the banner and make some changes for the better for them. They're begging journalists to do it. But to be honest, they don't even have the time to do these things.

To be quite honest, it's us really who must beg the journalists to please do this. They don't have Wi-Fi; they don't have the time while they're being bombarded to even respond or share their texts explaining what's happening. The situation in the north is catastrophic in that sense.

BM: My question on journalists I will save for later. You were on the BBC recently and you spoke about the maternal health crisis that existed there. I remember when the hostilities broke out there were reports on the number of expecting mothers and infants that were facing grim prospects. Maybe from your perspective you can explain the level of crisis and trauma that people of Gaza are going through using the internal health crisis as a starting point.

BI: The types of healthcare crises that have emerged in Gaza that have never been really spoken about to the same degree or extent, but also have never been conceptualized. It's quite difficult to conceptualize the problems we're talking about that impact every basic aspect of the human condition.

When you think about maternal health care, as I mentioned in *The Lancet* piece, and the BBC interview, you have women undergoing C-sections without anesthesia, and you have women that are giving birth in some of the tents without access to midwives, without access to hospitals. And there are people so malnourished that they are not able to produce the milk needed for their newborn children.

[Excerpt: Our colleagues in Gaza, local physicians who face the horrors of this large-scale violence daily, report an unprecedented rise in maternal deaths, miscarriages, and stillbirths. The malnutrition that many pregnant women endure only exacerbates these outcomes. Without access to proper nutrition or health care, they are forced to carry pregnancies through conditions unfathomable to the human conscience. This blockade, now in its second decade, and ever-tightened over the last few months, has compounded the suffering, with dire implications for future generations. The prevention of births in Gaza is not merely collateral damage—it is

a violation of international law, a grim reminder of the structural violence imposed on this population.]

In many instances they're undergoing miscarriages because of malnutrition, sometimes due to the infectious disease, sometimes due to the trauma they have been facing, the forced displacement.

In the US or the UK and most parts of the world when there's a pregnant woman, there's so much thought that's put into what they should or shouldn't eat, what activities they should or shouldn't do, on a day-to-day basis. They have discussions with their physicians and providers about what the impact of this or that will be for their child going forward. There is so much research ongoing on these topics these days.

Now imagine all of that out of the door. It isn't that they are not doing any of the extra precautions that are prescribed. They are actively facing a slow death, giving birth to a baby while facing a slow death. That is really the condition of maternal health care in Gaza. In many ways, it is a death sentence to be pregnant in Gaza. With the prevention of births, it is plausible to suggest that the Palestinian presence in part, or in whole, may cease in Gaza simply because of the prevention of births. These are one of the less talked about aspects of the genocide.

We have seen the large-scale attacks on healthcare facilities, including maternal and neonatal wards and maternal areas. We see the destruction on civilian infrastructure. There was a paper by Dr. Yara Asi and some of her co-authors published in *Conflict and Health* that mapped out the spatial analysis of the types of destruction to healthcare and civilian infrastructure, I think, more accurately.

And there's been more papers that have been published that dive deeply into analyzing this. So, we know all of this. It's well recorded. But what we don't really see is what life in a tent is like?

We know that international and foreign media journalists are not able to get into Gaza. There are a few that can get in but only with the IDF. But independent outlets or journalists are not able to get into the Gaza Strip. The journalists that we do have over there are being attacked and killed. They are being labeled as combatants and killed thereafter.

Additionally, these tents, their makeshift homes, because they are or not in a "safe area" are facing airstrikes and assaults sometimes more than a given hospital on a given day. Accessing these areas becomes almost impossible and therefore people outside of Gaza don't see what life is really like for the one plus million people that are there.

"It's almost a death sentence to give birth to a child."

And I say one plus million because I don't know if there's more than two million people left in Gaza anymore. I feel uncomfortable using the word two plus million people in Gaza. We just don't know if that's the case anymore with the level of injuries and death toll, at least that we know of and then the ones that are expected to happen or the ones that we don't know about.

Maternal health care is just one gruesome aspect of that. It's not just the deaths, but the potential of what this means not only for life expectancy, but also for the birth rate. How many people are now going to give birth in Gaza? The conditions for privacy, to sustain a family, even to care for the new mother in the first few months, are non-existent anymore. This is not life. It's almost a death sentence to give birth to a child. Not only for oneself, but also for that newborn. What are the prospects of this child in Gaza?

They're going to be born into hell on earth, right? I don't know what I can say more than that. And that was what was said prior to October by so many UN officials. I don't know if any language in the world has words that can describe the condition of life in Gaza.

And I do want to underscore that it is not only a death sentence ... before the Rafah invasion, for many of these remaining families with young children or newborns that needed urgent medical care, there were around 50 patients that were getting evacuated [out of Gaza] on a day-to-day basis. These were medical evacuations. That number has dropped significantly. Since May, there have only been 200 medical evacuations through the Kerem Abu Salem/Karem Shalom crossing.

When these evacuations take place, many times fathers are outright denied entry at the crossings, that is if there's any living father left. Mothers are also frequently denied entry. The medical NGOs then must find a suitable cousin, or a suitable aunt, or some other relative that can accompany this child, and so you must think about the questions of not just forced displacement [and forced separation], but what are the consequences for the legal, the social consequences for this child's identity when you know full well that they will likely never be able to reenter the Gaza Strip conceivably for the rest of their lifetimes. What is the question of their identity, for their statehood, their citizenship, their nationality?

These concepts that we have in ethics about informed consent, about autonomy in many ways, they go all out the door when it comes to Gaza in providing pediatric medical care. How do you get permission, or who do you get permission from, to perform surgery on a two-year-old child or an 18-month-old presenting with a gunshot wound to the eyes when there may be no surviving family members? This infant/child may have just been pulled out of the rubble of a destroyed apartment building.

No one has any contact. If there aren't any living family members, who do you get consent from now? Is it the surgeon who's seen this patient for maybe one day now? Is that the person who is now their guardian or legal surrogate decision- maker? There's no government you can get consent from.

Just circling back to our earlier discussion, one scene that has been repeated so many times now that it doesn't seem to hold the same gravity as the first time that I saw it. The babies that are being born and then killed a day later or sometimes hours later, the first time I saw one of these scenes a year ago I messaged one of my friends. I said that it is as if this child whose mother carried them for nine months and just delivered them, this child's sole purpose in this world was to show the rest of the world it was born to die. We can see that this is what's happening in Gaza. The function of this life in this world was to be advertised all over social media and to be seen all over the press and the media of the world, that this child died and that the life of this child was death.

We've seen this happen so many times. There are so many such cases, that it is heartbreaking. Words don't capture what we're seeing in Gaza.

BM: When we spoke a few days ago, you said that FAJR was trying to get hospital records out of Gaza, protecting them from being destroyed, so that they can be preserved for a future inquest. You also mentioned that Palestinian reporters are being targeted by Israeli soldiers. There's this sense that Israel is trying to erase the entire history and experience of the Palestinians.

BI: Those are important points. I do just want to distinguish the differences between my role and FAJR's role. FAJR has been much more involved in medical data collection in terms of documenting the cases that their physicians and teams are witnessing, whether that's the Gaza-based ones or visiting international physicians.

We had a recent piece that really broke down some of fracture-related infections. And for the sake of the peer review process, I can't divulge too much about the ongoing studies, but they are essentially looking at different aspects of orthopedic trauma, injury classification patterns of gunshot wounds, blast wounds, etc. and characterizing these within age groups and gender. These studies are important to publish in medical literature, but at the same time they serve to inform and educate the media and the global community at large in

every aspect of civil society.

[Excerpt: In this study, more than half of all fractures were caused by explosive injuries. Large explosives are engineered to inflict significant harm on victims by generating a negative pressure suction. These blasts have devastating consequences on civilians both directly and indirectly. The pressure from a blast wave is often lethal with some explosives reaching forces of up to 100 psi. Furthermore, blast waves propagate through surrounding infrastructure, propelling shrapnel and debris to hurricane-like velocities [26]. Haque et al. found that civilians injured by an explosive were more likely to have concomitant injuries and had worse rates of wound closure when compared to patients with gunshot injuries [27]. Moreover, explosive injuries expose patients to penetrating trauma with metals, leaving bone and soft tissue vulnerable to foreign pathogens such as bacteria or fungi [28]. Given the heightened risk of microbial exposure, explosive injuries require careful attention to serial debridement and regular monitoring for early signs and symptoms of infection [29].]

I distinguish that from what I have been trying to lead, which is data preservation in a broader sense and not just the cases that one visiting team is seeing. I have been speaking with some of the health care staff across some of the different hospitals and I do need to be vague for their protection. We have both raised this question on how to preserve this data that includes patient files. The entire electronic medical systems have virtually collapsed. There is also limited Wi-Fi, limited connectivity, and limited time to do the intakes and gather this data because of the extreme conditions these facilities are operating under.

And when there is an evacuation order for a hospital, people begin to flee for their lives, which makes conditions quite chaotic. The healthcare staff that remain with their patients oftentimes sacrifice their own lives for them in the process of trying to get them out of the area. Because they wear white coats, they become targets. We have testimonies from Palestinian detainees that hospital staff were arrested or abducted. And even killed. When you are spending every moment about human life in front of you that you must save, there is little time to think about gathering and filing these pieces of paper.

But at the same time, we do need to think about preserving these things. We need to think that maybe the entire population around us is going to be wiped out. But 30 or 40 years later, maybe a hundred years later, if we have these patient files, maybe someone sitting in some high school or university can know what happened.

When we are talking to them about saving these files, that's really what we're asking them to do even though in the immediate short term it's not going to change what's happening to them. And maybe, in the long-term it won't change much either. We've seen previous crimes against humanity committed in the past. And we thought that education, awareness and knowledge, and the documentation of those crimes would probably prevent such crimes as the ones that are unfolding again. I don't know whether that is even a safeguard measure, but at least we can live and tell their story. At least their story can be told about what they saw and what they witnessed. So, that is the impetus to save this data.

I do also want to remark about the courage and talent these healthcare workers there are demonstrating. Some of these surgeons are talking to me about brain scans, and the possibility of using AI technology to assist in their diagnostic work. They're pushing the boundaries of medicine in a way I have not really seen many of my peers in the US even discuss. Given the level of destruction, their thought [is] on these tools or software to assist them with identifying types of injury patterns and systematize the whole process. Despite the hazards they face, they are still innovative, still desirous of working, of giving back to the medical research community. They want to create.

And I think that is one of the biggest lessons I've learned about the Palestinians I have met. Amid all the destruction, they still want to create,

build, rebuild, and recreate.

I'm going to be quite vague about this next part just for security reasons. And this is of a personal nature and has nothing to do with FAJR. I have met members of different civil society organizations that are working on trying to document and gather evidence of the various crimes being committed in Gaza. When I'm thinking about some of the medical cases that I want to highlight, I also want to contextualize and frame those within the crimes [of genocide] that are unfolding in medical terms. We're not lawyers. We're not able to make legal determinations about crimes, but we can provide our observations whether they may or may not serve as evidence for one crime or another. Still, we know there are a series of crimes being committed.

This also relates to the role of journalists.

Journalists and their families have been summarily targeted in such extreme fashions. There's a deliberate propaganda campaign against Palestinian journalists. Last year the attack on the family of *Al-Jazeera* Gaza bureau chief Wael Dahdouh is a prime example of this inhuman cruelty. His eldest son, Hamza, who was 27, the IDF bombed his car in January because he and his cameraman were using a drone to film the aftermath of an airstrike. The Israelis said that they had attacked a terrorist who was operating an aircraft that posed a threat.

More than a hundred-plus Palestinian journalists have been killed. Journalists have also been targeted in Lebanon and the West Bank. Certainly, the destruction in Gaza warrants even more media attention, and therefore, more journalists are being killed there. Less than two weeks ago, the *Times of Israel* published a dossier explaining there's evidence that the remaining six or so journalists in northern Gaza, including *Al Jazeera* ones, are combatants of some sort.

I think people need to get to the stage of just really laughing at these assertions instead of wasting time trying to deny or push back against the ridiculousness of these assertions. We need to come together as a global citizenry to the stage of recognizing that with this level of propaganda, the level of lies that we're seeing, it is not worth even trying to disprove because it is part of the tactic to waste our time. They need to be treated as the pariahs that they are.

In the sciences, when people make factually incorrect statements and there is no empirical evidence to back them up, then one does not engage in lengthy debates with them or give them any legitimacy that they have some equal standing. We need to apply that same framework when we're talking about what's happening in Gaza and the rabid propaganda that we're seeing levied against healthcare facilities, against healthcare staff, against journalists, against the average civilians.

I was recently speaking with some journalists and doctors trying to unpack how they feel about the ethical dilemmas they face. I met Motaz Azaiza, one of the photojournalists who has since left Gaza. I also am speaking with journalists and doctors on the ground. The question I posed was what they think about their role in trying to talk to the media knowing that healthcare staff and journalists are being targeted. Do they feel they may be endangering the facilities around them by even reporting because journalism has become criminalized in Gaza, and in many ways, so has healthcare? I wondered how these two groups felt that they may be putting each other, or their patients, or civilians around them at risk for just doing their work. And it's sad that we must think about things like this, but I think our ethics need to be rooted in the practical reality of what is actually unfolding rather than abstract concepts.

BM: Bilal, what do you think about the *Lancet* piece that came out in July that estimated 186,000 deaths had occurred? Trying to make such estimates in a conflict like Gaza must be extremely challenging. Maybe you can speak to current estimates that you are aware of and why it's so difficult to get these numbers.

BI: In the *Lancet* piece, what they essentially said was there's somewhere from 3 to 15 indirect deaths for every direct death in a conflict

zone. And they use the conservative estimate of 4, which is extremely conservative in the case of Gaza. With that, they multiplied by 5, considering there's 4 indirect deaths based on the death toll at that time and got the projection of 186,000.

It's important to understand they said, "Deaths attributable to this conflict." It may not have been the actual death toll of people dead back in June or July, whenever that was published. But that because of what has happened, even if there was a "ceasefire," that is the toll they would expect. I really don't like that term ceasefire because it is not solving the issue at hand, and that a ceasefire does not mean that there's going to suddenly be great health care in Gaza, or the conditions of Gaza for a better life are going to somehow just reemerge when they barely existed even prior to October of 2023.

So, the *Lancet* estimate is what could be the eventual total death toll.

We saw other estimates, right? We saw estimates that were somewhere in the low hundred thousand. We saw estimates that were in order of 335,000 that were published. And we say others somewhere in between, around 200,000.

John Hopkins Bloomberg School of Public Health, in terms of the rigor of the methodology that they've been employing, have done fabulous work in this respect. I've listened to talks by some of the people involved in those reports. They have done projections over several months at different stages based on various scenarios and then they've further categorized these based on different types of infectious diseases like cholera, and then made projections about the fatality estimates. There is much detail in these lengthy reports and they're still doing research on this question.

One has to understand that even those models, and I get this from the limitations that they themselves explicate in their study, but also from listening to some of these talks by the people who've been involved in these death toll projections, you realize then that they're omitting things because it's just so hard to record anything. It's so hard to estimate anything. With the degradation of healthcare infrastructure, you lose data surveillance tools.

What the Ministry of Health was able to accomplish back in October of 2023 is not what they were able to accomplish in November of 2023, and it is not what they were able to do before the Rafah invasion and now with the assault on northern Gaza.

Key in all of this is that things are not static. There are different patterns in the conflict. First the airstrikes, then the ground invasion, then a lull, and the airstrikes start up again. And this shifts throughout the Strip and the pace of things are changing down to the street level.

Going back to the resilience of the Palestinians, many of them go back into these same areas and try to collect data on a casualty. But one must understand, it's not just the rubble that's not being accounted for. The process of being able to report it, having the signal, having the type of connection to be able to report through any of the various platforms, the process of having the witnesses, having the right type of documentation to identify a person, prove who this person is. Those are just some of the challenges.

Why Palestinians fear to report the deaths of relatives

[Another is] having the right types of incentives to even report a death. And what do I mean by this? Based on some of my conversations with Palestinians who have been in Gaza, there are some people who have a larger incentive to try to establish the cause of death and the identity of that person. But you must report that death through the Ministry of Health and they have to issue the death certificate. That certificate would act as

proof and allow, for instance, a widow to tell the world that her husband, maybe all her brothers, or her parents, or her children, have been slaughtered. Maybe she can also get some relief, some funds, some donations that could facilitate her evacuation. So, those are types of people who may have had an impetus.

But what we do know is that the people who work in the civil sector of Gaza, in many of these healthcare facilities, for example, they are, just by the nature of how governance in Gaza used to exist prior to October 2023, everything that's happening over there comes under the umbrella of the local authorities. And those local authorities are deemed as terrorist combatants by the Israeli occupation. So, consequently, the people who may be doctors in these facilities, their family members, some of them may not want to make reports on the deaths taking place out of fear of reprisals. They may not want to be affiliated with this person who is in the eyes of international humanitarian law and our human conscience a civilian, but who may be deemed a military combatant by the IDF.

So, now, anyone by reporting not only can their phone be geo-tracked and their location determined just because they went and uncovered the death of a person and its cause, but they also expose their entire family members to collective punishment, which is a stated explicit crime, but is something that is continuously practiced in Gaza or the West Bank with the demolition of homes of entire families based on the actions of one person.

Knowing that collective punishment is going to be inflicted upon them, then the next 70 or 80 members of their family have no incentive to even be affiliated with that person because they may all become "legitimate" targets because of this person. And when you compound that with the whole population, that's essentially the entirety of Gaza's population.

Most people are taking some level of risk in reporting. And the degree of that may be different. I don't think we will ever truly know the death toll. I've been working on and trying to unpack aspects of it over the last several months. I think the only thing I can really say is I can highlight the challenges, but it's so hard to really give you a number. I really do respect what the folks at Hopkins have been doing in some of the other projections. I think we should look at all the projections, right? We must understand the merits, the strengths, the methodologies of all these observations.

I fear that the state of where our world is headed is that we do need to inform future crises. How do you equip yourselves with data surveillance tools if you are experiencing what the people of Gaza are experiencing? I hope and pray that nothing like that will ever happen again.

BM: Earlier you said, "One million plus people living in Gaza. I don't feel comfortable stating that there are two million plus." I thought that was quite an eloquent statement. You wanted to speak about your personal experience in West Bank. Maye there is something you'd like to share.

BI: There's so much to be said at every level of it. One thing I noticed is when I meet a Palestinian in East Jerusalem, they'll say something like, it's difficult for us, but what about the people in the other parts of the West Bank? When I meet someone else in another part of the West Bank, they'll say, but what about this person in this city or this town or this refugee camp in the West Bank? And when I meet them, they say, but what about our brothers and sisters in Gaza? And then when I'm talking to someone in Gaza, who's in the South, they say what about the people in the North? They have it worse than us. "I have eaten cheese in the last three weeks. But they have probably not eaten anything."

The level of resilience is exceptional. But I have difficulty with the word resilience because resilience implies that they have some degree of choice, but they don't have a choice. They must do this if they are to survive. Their survival is so eloquent, and the way that they do it so empathetic, so poetic.

I hate to pick one thing because I have seen so much. It seems that the worst thing I saw, or choose to reflect on at this moment, and that is the

level of sexual violence that is committed against Palestinians. I know we saw reports about it, and it's been detailed about what happens at checkpoints, in these prison camps. I also hate the word prison because these aren't prisoners or detainees in the truest sense. These are people who've been abducted from their homes. Hostages. That's more precise. These Palestinian hostages face horrific sexual violence—they are raped, sodomized.

I mean there are all types of crimes, but sexual crimes are so difficult to understand. Even just reading these reports, they're horrific. But when I saw firsthand children publicly raped ... it was nighttime, possibly they were going for the dawn prayer or crossing a checkpoint. After witnessing it, I just couldn't believe that it was possible. How does one do this? I don't know if I have an answer how one human being can come up with this type of "creative" crime, but also carry it out and then these soldiers have these gleeful joyous expressions on their face.

BM: Bilal, do you have any final words you'd like to share?

BI: I'd say to the global medical community, you cannot forget your colleagues in Palestine. These are humans, just like you. They have the same desires, the same hopes, the same aspirations.

When I talk to some of the medical students in the now destroyed universities in Gaza, many of them talk about continuing their medical education. Some of them talk about trying to finish their exams. They're trying to do online courses or something with the West Bank universities or with whatever limited online facilities they can access.

Again, the situation on the number of these hospitals continues to change and primarily because Palestinians are rebuilding those facilities. The Israelis are destroying them, but the Gazans are finding scraps to rebuild them. A physician in Gaza had texted me a few nights telling me how he dreamed about wanting to play soccer. He was happy to be speaking about something he had a passion for, something that wasn't about the violence and death in Gaza that made him feel normal.

They are humans just like us. They don't want the only conversation with them to be about what they're experiencing every single day, or that they're not able to even access the bathroom. He was jokingly saying to me, "Don't worry. I think we all have undiagnosed insomnia, or we've developed new sleep conditions."

The buzzing of the drones, that's probably one of the most frequent voice memos I get from Gaza and WhatsApp messages. The sound of the drones at night, even if there's no airstrikes or gunshots. The ear-piercing drone sounds that would normally drive someone insane. They've had to live through this for one plus year. He also said, "We all have a bunch of respiratory infections. We probably have the strongest immune systems by now." Although he was saying it in a joking way, he said it was so sad that even the doctors are patients and victims.

Some of the doctors that have been abducted who have now been released, and they're going back to their work, sometimes after months of torture, sexual abuse and violence, of being sodomized, raped, cuffed, blindfolded, forced to kiss the feet of soldiers and the types of degradation, the dehumanization they're coming back after all of this, if they're released, and working and providing care again. That is the story of Gaza. That is the story of what a Palestinian is in the truest sense of what they can accomplish. And I think we all need to be ashamed of ourselves to some degree.

BM: Bilal, thank you for your powerful testimony.



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