

# Medical Resistance and Universal Ethics in the Shadow of the Holocaust: A Tale of Two Heroic Clinical Encounters

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It is 3:00 in the morning at an Israeli medical center. The rhythmic beeping of monitors pierces the silence as an on-call team gathers around a patient's bed. The team includes a Jewish doctor, a Muslim nurse, and a Christian physician. In these critical moments, the only language spoken is the language of medicine—a seamless blend of physiology, pharmacology, and an ancient medical oath.

For us in Israel, this reality is natural and common. Yet, viewed through a historical lens, particularly against the backdrop of World War II when medicine itself was weaponized and conscripted into an extermination machine, this collaboration was nothing short of a monumental triumph of the human spirit. In this editorial, I invite you on a historical journey to revisit two profound narratives where physicians from diverse backgrounds transformed their clinical knowledge and authority into instruments of life and resistance.

**RESEARCH ON THE EDGE OF THE ABYSS: THE CLINICAL LEGACY OF THE WARSAW GHETTO**

Our first narrative unfolds in the heart of darkness, presenting an enigma

that defies the very boundaries of medical logic. How does a living hell transform into an advanced research institute? How do physicians, their own bodies wasting away, summon the fortitude to articulate one of the most brilliant physiological studies of the 20th century?

To grasp the magnitude of this achievement, we must rewind. Before the outbreak of the war, the Czyste Hospital in Warsaw was a magnificent Jewish medical institution, among the most advanced in Europe. Yet in 1941, as the ghetto walls closed in, the Nazis decreed that the entire hospital must be relocated within the densely packed ghetto confines. Overnight, entire wards were crammed into abandoned schools and dilapidated public buildings, devoid of heat, running water, and presenting with a horrifying dearth of medications. Ghetto physicians found themselves working double and triple shifts, battling epidemics of typhus, tuberculosis, and freezing cold while operating by candlelight and laundering used bandages.

However, the true tragedy revealed itself gradually. Dr. Israel Milejkowski [Figure 1], director of the ghetto's health department, and Dr. Julian Fliederman, a brilliant clinician, began gathering epidemiological data. They scrutinized the ration cards issued by the Germans. The caloric allocation



**Figure 1.** Dr. Israel Milejkowski (1887–1943), Director of the Warsaw Ghetto Health Department, who spearheaded the clandestine clinical research on Hunger Disease and authored its foreword

for Jews was set with chilling mathematical precision at approximately 180 calories per day. At this juncture, a terrifying realization crystallized. The Germans were not merely starving the ghetto. Unlike the sadistic, pseudo-scientific surgical experiments conducted by SS doctors on isolated individuals in Auschwitz, this caloric allocation was actually a calculated policy of mass extermination. The Nazis were executing a meticulously calculated, institutionalized starvation

model to investigate, and ultimately accelerate, the natural extermination rate of an entire population. The ghetto residents were laboratory mice in a transparent cage.

Facing certain annihilation, a decision was made that bordered on a miracle of medical ethics. The physicians decided to rebel. They reasoned that if we were condemned to serve as raw material in a lethal biological experiment orchestrated by a murderous regime, they would expropriate the research from their hands. They would be the ones to document the pathophysiological process with rigorous academic precision, aiming to bequeath invaluable medical knowledge to the world. "I hold my pen as one holds a surgical scalpel," Milejkowski wrote in his diary [1].

A clandestine cohort of 28 physicians coalesced. These investigators were not a random assembly. They were a multidisciplinary team of Polish Jewry's finest medical minds. They were professors and department heads who had lost their world yet vehemently refused to lose their professional identity. Among the physicians were internists like Dr. Julian Fliderbaum, who investigated clinical metabolism and fluid balance; cardiologists like Dr. Emil Apfelbaum, who studied cardiac hemodynamics; pediatricians like Dr. Anna Braude-Heller, who examined the devastating effects on infants; ophthalmologists like Dr. Szymon Feigenblat, who documented the collapse of the visual system; and pathologists like Dr. Joseph Stein, who conducted autopsies under gruesome conditions to substantiate findings. These physicians divided the dying human body into research departments, synthesizing a comprehensive pathophysiological portrait of Hunger Disease (*Maladie de Famine*) [2].

By day, they continued to function

as attending physicians, desperately attempting to alleviate their patients' agony. By night, under the guise of staff meetings, they became investigators. Risking their lives, they smuggled reagents and chemicals from the Aryan side of the city to perform biochemical analyses of serum and urine. They meticulously documented the body's shift from glycogen catabolism to destructive gluconeogenesis. They analyzed how massive protein depletion precipitated extreme hypoproteinemia, driving a severe drop in oncotic pressure and the subsequent development of profound starvation edema (*Anasarca*).

One of the most fascinating discoveries, which continues to evoke clinical awe today, belongs to Dr. Szymon Feigenblat, who spearheaded the ocular research team. Operating under near-total darkness and with minimal equipment, Feigenblat conducted systematic ophthalmic examinations in the Warsaw ghetto, documenting ocular manifestations of severe starvation. He described lens opacities suggestive of early cataract formation and reported reduced intraocular pressure, possibly reflecting impaired aqueous humor production in the context of profound malnutrition. In addition, he noted apparent alterations in ocular structural integrity, including reduced scleral rigidity. Notably, and in contrast to established expectations, classical signs of vitamin A deficiency—such as nyctalopia or xerophthalmic changes—were not observed, suggesting a more complex and heterogeneous pathophysiology of starvation-related ocular disease.

What became of these intellectual giants? In July 1942, during the Grossaktion Warsaw, the systematic liquidation of the ghetto began, with daily deportations to Treblinka. Aware that their end was imminent, the physicians undertook a final, urgent effort to preserve their scientific

work. They assembled their research materials comprised of multiple manuscripts, clinical records, graphs, and data produced collaboratively by the group, and arranged for the reports to be smuggled to the Aryan side of Warsaw. There, the documents were entrusted to the Polish physician Witold Orłowski, who concealed them within his hospital. Most of the approximately 28 physicians involved in this project were subsequently murdered, many in Treblinka. Following the war, the preserved materials were recovered, edited, and published in 1946 as *Maladie de Famine*, ensuring the survival of one of the most remarkable clinical studies ever conducted under conditions of extreme starvation [3].

Beyond the clinical documentation itself, the physicians bequeathed a life-saving warning to the world. They found that the sudden administration of a carbohydrate-rich diet to severely starved patients precipitated a drastic clinical deterioration and rapid mortality. They clinically described what modern medicine would later define as *Refeeding Syndrome*. The abrupt influx of carbohydrates triggers massive insulin secretion, driving a rapid intracellular shift of potassium, magnesium, and phosphorus. The consequence is profound hypophosphatemia, leading to lethal cardiac arrhythmias and multiorgan failure [3].

Eighty years after the physicians of the Warsaw Ghetto wrote the protocols of starvation disease in blood, the Israeli medical establishment found itself confronting an almost identical, cruel reality. With the return of the hostages abducted by Hamas on 7 October 2023 who endured months under prolonged starvation conditions, Israeli hospitals prepared for a massive nutritional rescue operation. The medical teams treated the returning hostages based on those ex-

act, meticulous protocols designed to prevent Refeeding Syndrome. These protocols saved lives in modern-day Israel, drawing their scientific roots from the heroic research conducted in the darkness of the Warsaw Ghetto.

**A CLINIC OF CONCEALMENT IN THE HEART OF THE REICH: THE INCREDIBLE STORY OF DR. MOHAMED HELMY**

The second station on our journey takes us straight into the lion's den, opening with a mystery that seems to contradict historical logic itself. How could an Arab physician, born in Egypt, not only survive in the heart of Nazi Berlin at the peak of its power and madness but also repeatedly outwit the most ruthless Gestapo agents?

The plot begins in 1922. Dr. Mohamed Helmy [Figure 2], a young man from an affluent Egyptian family in Khartoum, set his sights on obtaining a first-rate medical education. During the Weimar Republic, Berlin stood at the forefront of science, culture, and medicine. Helmy integrated rapidly, completed his medical training, and worked as a physician in

Berlin, including at Moabit Hospital, while also engaging in clinical and research activities.

However, in 1933, with the Nazi Party's ascension to power, the clinical picture of all Germany mutated. Racial theories began seeping into the hospital corridors. In 1937, Helmy's brilliant career was severed in a single stroke. He was dismissed from his hospital post based on racist, pseudo-scientific grounds. He was classified as *Hamitic* (a descendant of Ham), a non-Aryan race. He was barred from working in the public health system and forbidden to marry his German fiancée, Frieda Szturmann.

With the outbreak of WWII in 1939, Helmy was arrested along with other Egyptian and Arab citizens and thrown into the Wülzburg concentration camp. The reader might wonder why he was not killed in the camp. The answer illustrates the cynical politics of the Third Reich. Adolf Hitler and the Nazi leadership were actively courting the Arab world, hoping to incite rebellions in the Middle East against the British Empire. Driven solely by cold diplomatic interests, Helmy and other Arab exiles were released in 1940. Although he was subjected to constant Gestapo surveillance and forced to report to the police daily, Helmy chose not to flee. He remained in Berlin and opened a private practice. This clinic quickly transformed into an island of sanity and a beacon of humanity within a sea of cruelty.

Among Helmy's regular patients was a Jewish teenage girl named Anna Boros. When the mass deportations of Berlin's Jews to the East began in 1942, Anna and her family faced the immediate threat of extermination. At this critical juncture, Helmy did not hesitate. He acted not out of a political agenda or religious motive, but from the purest moral and

ethical imperative of the physician's oath. Anna was his patient, and a physician's supreme duty is to protect the life of their patient, regardless of the murderous ideology ruling the streets.

Thus began a breathtaking, detective-like game of cat and mouse against the German terror apparatus. Helmy wove a daring scheme. Leveraging his connections, he approached the Central Islamic Institute in Berlin and successfully procured a forged identification document for Anna, certifying her as a Muslim woman married to an Egyptian man. He relocated her to a small wooden cabin he owned on the outskirts of Berlin. To explain her presence to the German neighbors, he introduced her as his niece and officially appointed her as a clinical assistant in his practice [5].

However, the Gestapo agents were not fools. Fed by incessant informant reports, they began to suspect that the Arab doctor was harboring Jews. They raided Helmy's clinic multiple times. It was here that Helmy's psychological genius shone brightest. Instead of exhibiting fear, he wielded medicine as his shield. The Germans harbored profound reverence for academic titles and medical authority (*Herr Doktor*). When the interrogators breached the clinic, Helmy stood tall before them, draped in his pristine white coat, his stethoscope resting authoritatively around his neck. He deflected their interrogations with professional arrogance, flooding them with impenetrable, high-level medical terminology, describing complex anatomical procedures or highly contagious infectious diseases that physically repelled them, demanding they cease interfering with his sacred healing work. His clinical self-assurance thoroughly bewildered the Gestapo agents, forcing them to retreat time and again.

Yet his audacity did not end there.

**Figure 2.** Dr. Mohamed Helmy (1901–1982), the Egyptian physician recognized as Righteous Among the Nations for his courage in hiding Jewish patients in the heart of Berlin



Helmy actively assisted Anna's grandmother, mother, and stepfather, who were hidden across Berlin. At night, Helmy would ride his bicycle, carrying his doctor's bag laden with medications. He would sneak into the safe houses to examine his hidden patients and provide them with comprehensive medical care, risking certain execution had he been caught.

Anna Boros survived the inferno thanks to the resourcefulness and immense courage of her physician. After the war, she immigrated to the United States and maintained a warm, continuous correspondence with her rescuers. Helmy remained in Berlin, finally married his beloved Frieda, and continued to serve as a highly respected physician until his passing in 1982.

Decades later, history demanded its restitution. In 2013, following the testimonies of Anna and her family, Yad Vashem recognized Dr. Mohamed Helmy as Righteous Among the Nations—the first and, to date, the only Arab to receive this honor [6]. In 2017, Dr. Nasser Kotby, an Egyptian professor of medicine and a relative of Helmy, agreed to accept the med-

al on behalf of his great uncle. In a ceremony held at the German Foreign Ministry in Berlin, Kotby emphasized a message that resonates to this day. Helmy's actions did not stem from politics, nor from religion, they emanated from pure humanity and from the supreme, unwavering commitment of a physician to human life.

### CONCLUSIONS

As we gaze through the lens of history, we can see a cohort of Jewish physicians investigating the pathophysiology of their own demise so they can leave behind a life-saving clinical legacy. We see an Egyptian Muslim physician whose clinic became a living shield around a persecuted patient. Today, in the corridors of Israeli medical centers, on the wards, the emergency department, and the operating room, we see collaboration among Jews, Muslims, and Christians as more than a hollow slogan of *coexistence*. It is the organic continuation of that same sacred oath. In the face of a world that occasionally loses its sanity, medicine will always continue to speak one solitary, universal language: the language of life.

### Correspondence

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**I have two professions, not one. Medicine is my lawful wife and literature is my mistress; when I get tired of one I spend the night with the other.**

Anton Chekov (1860-1904), Russian physician, playwright, and short story writer

### Capsule

## Environmentally driven immune imprinting protects against allergy

**Erickson** and colleagues showed, using a mouse model of allergic disease, that exposure to immunostimulatory environments generated cross-reactive adaptive immune memory, which tracked with obstructed type II immune responses upon allergen exposure. They found that engagement of cross-reactive adaptive immunity protected against future allergic sensitization and suppressed established allergic responses. Cross-

reactivity in a tolerogenic context also prevented allergy, with the effect extending across antigenically complex exposures even at low protein sequence similarity. These findings demonstrate a mechanistic relationship between environment and allergy, with general implications for adaptive immune function in natural settings.

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