

His Excellency Dr. Al-Issa speaks at the World Affairs Council

The Muslim Woman Behind the United States' first COVID-19 Vaccine

Muslims Using Technology in the Fight Against COVID

The Classical Influence on Islamic Medicine



ISLAM'S PRINCIPLES CONTRIBUTING

to Health of Humanity



What is moderate Islam? It advances coexistence, empathy and peace. It instructs us to provide for those most in need. It commands us to build bridges of dialogue and cooperation. It teaches us to embrace people of other faiths and beliefs.

This is true Islam.”

— His Excellency Sheikh Dr. Mohammad Abdulkarim Al-Issa



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Muslim World League

Recent Activities in Review



The MWL endorsed the inaugural UN International Day of Human Fraternity, which calls for greater dialogue and understanding among people of various religions or beliefs.

Dr. Al-Issa met with Janet Alberda, the ambassador from the Kingdom of the Netherlands to the Kingdom of Saudi Arabia.



Dr. Al-Issa received H.E. Mr. Adnan Filaluna Alonto, the ambassador of the Republic of the Philippines to the Kingdom of Saudi Arabia.





Dr. Al-Issa welcomed H.E. Mr. Berik Aryn, the ambassador of the Republic of Kazakhstan to the Kingdom of Saudi Arabia. The ambassador presented an official invitation for Dr. Al-Issa to visit Kazakhstan to further cooperation between the MWL and the Kazakh government.

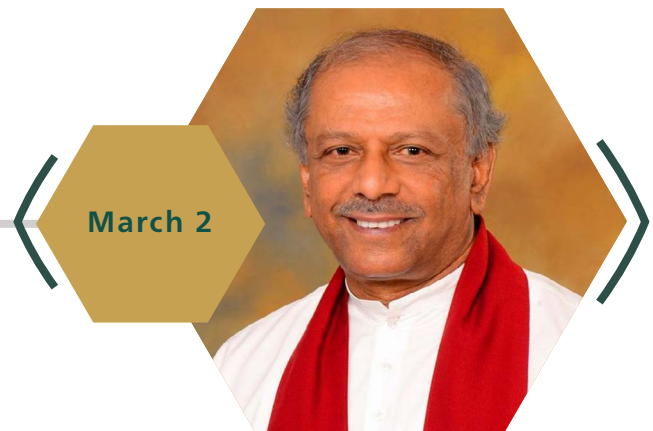
The Muslim World League recognized the anniversary of the terrorist attack near Frankfurt, Germany, one year ago that left nine innocent people dead. In remembrance of those who were lost, the MWL renewed its call to confront hatred and extremism in all forms.



Dr. Al-Issa met with Dr. Gregory Matrosov, Chairman of the Patriarchal Council for Islamic Relations in Russia, at MWL headquarters in Riyadh. Dr. Matrosov conveyed greetings from Patriarch Kirill, the Patriarch of Moscow and all Russia. He shared appreciation for the Muslim World League and Dr. Al-Issa's efforts to promote coexistence and harmony among religions and cultures.



Dr. Al-Issa received a call from the H.E. Dinesh Gunawardena, Minister of Foreign Relations for the Government of Sri Lanka, to address the issue of burning the bodies of Muslims who died as a result of the COVID-19 pandemic in Sri Lanka. Sri Lanka instituted a mandatory cremation policy for those infected with COVID-19, a policy that conflicted with Islamic burial teachings. As a result of a request from the Muslim World League, the government of Sri Lanka agreed to cease cremation of Muslims who die from the coronavirus, allowing Muslim families to perform burial rituals for their loved ones.





Dr. Al-Issa commented on the landmark visit of Pope Francis to Iraq, praising the Pope's effort to promote the values of love and harmony among the followers of different religions. Dr. Al-Issa met with Pope Francis in 2017.

The Muslim World League recognized International Women's Day. This year, the MWL shared the perspective of women who work in the MWL organization at their offices in Saudi Arabia and around the world. The MWL empowers women of all faiths through its projects and partnerships around the world.



During his visit to Saudi Arabia, Prime Minister Muhyiddin Yassin of Malaysia visited the newly opened Museum of the Life of the Prophet and Islamic Civilization. He expressed thanks to the Custodian of the Two Holy Mosques and the Crown Prince of Saudi Arabia for their support and for hosting the museum in Saudi Arabia. The Museum in Madinah is the first of several exhibitions planned by the Muslim World League. Last year, Dr. Al-Issa attended a ground-breaking ceremony for a branch of the museum in Indonesia.





Pope Francis, surrounded by the shells of destroyed churches, attends a prayer for the victims of war at Hosh al-Bieaa Church Square, in Mosul, Iraq.

The world has been in the grips of a pandemic for more than a year now, the worst health crisis in more than 100 years. Health care is on everyone's mind. We ask how we got here and how long it will take to return to normal. We also ask if we will ever go back to the same patterns of behavior we practiced before the pandemic, when the next pandemic will hit, and how serious it will be.

With that experience in mind, we dedicate this issue to the subject of health and medicine. We review the Islamic medical tradition and its legacy in medicine as it is now practiced worldwide. We take advantage of this moment to highlight the contributions of Islamic women to medicine, both today and as far back as the seventh century. Far from being relegated to the sidelines, women have played a strong role in medicine and health in the Islamic world for centuries and are among the top researchers, innovators and practitioners in the world today.

The visit of Pope Francis to Iraq in March fits into this narrative, because he defied conventional wisdom to travel abroad at a time when world

leaders were staying home. He braved exposure to the coronavirus to deliver a message of healing, tolerance, faith and love to a people who have been suffering unspeakable violence and instability for years. The Iraqi people have suffered the extremes—of war, of terror, of sectarian violence, of extremist repression based on a perversion of Islam, and now a disease. They await healing vaccines like the rest of us, but they were given a vaccine for the spirit, and they showed Pope Francis their appreciation in return.

The work of the MWL continues, despite the pandemic. The dialogues are virtual, and we continue to deliver our message of tolerance and to keep the flame of tolerance and understanding burning brightly. But we are also making preparations with our friends and faith partners to take that torch around the world once more.

- The Editors



Clarifying and Promoting the True, Moderate Principles of Islam:

Dr. Al-Issa Speaks to the Los Angeles

World Affairs Council and Town Hall Event

Members of the Los Angeles World Affairs Council, fellow religious leaders, distinguished guests, ladies and gentlemen, other local leaders in attendance:

It is my sincere pleasure to be with you today.

I want to thank Kim McCleary Blue and Rabbi Abraham Cooper for the very kind introduction. Rabbi Cooper has been a great friend since our first meeting in 2018. His work at the Simon Wiesenthal Center has played an important role in fostering greater interfaith understanding and cooperation.

I would also like to express my deep appreciation to the Los Angeles World Affairs Council for the opportunity to join you today to discuss the Muslim World League's mission of clarifying and promoting the true, moderate principles of Islam.

Unfortunately, we are must gather virtually today. But when this is all over, I hope to visit Los Angeles in person.

Los Angeles is the home of many different religions, faiths and creeds. It is a place where Muslims, Jews, Christians and others can safely live, worship and contribute to their local community. It is a city that promotes diversity and inclusion. And it's a place that succeeds as a result of the effort of such a diverse population.

As far away as Makkah, we recognize the great influence of Los Angeles. Not just for Hollywood.

Not everywhere is there such inter-communitarian harmony. This past year, we were reminded of how distrust and misunderstanding lead to anger, violence and social division. And we continue to see how technology and social media can both bring people together and divide people.

Extremism exists in all our communities. It's a cancer that preys on its targets. We must combat it everywhere.



The Muslim World League has built strong relationships with a number of religious leaders from around the world belonging to different religions and denominations—including Catholic, Orthodox, Protestant, Jewish, Buddhist and Hindu. "

— Dr. Mohammad al-Issa

Across the Muslim world, extremists have attempted to hijack Islam to spread hatred and divisiveness. But such evil does not represent true Islam. And we are actually winning the war of ideas against the extremists.



His Excellency Sheikh Dr. Al-Issa was joined by religious leaders from around the U.S.

I am the head of the most influential non-governmental organization in the Muslim world. It is my sacred duty to clarify the true, moderate values of Islam for hundreds of millions of Muslims around the world.

What is moderate Islam? It advances coexistence, empathy and peace. It instructs us to provide for those most in need. It commands us to build bridges of dialogue and cooperation. It teaches us to embrace people of other faiths and beliefs.

This is true Islam.

We constantly and at all levels, advocate for these values that represent true Islam.

Take my home country of Saudi Arabia. In the last four years, it has dramatically transformed under Vision 2030. This transformation included the adoption of the true values of Islam, in addition to other reforms. Dozens of reforms have been introduced at great speed to advance the role of women in society and promote health and education, among other things.

The Muslim World League has built strong relationships with a number of religious leaders from

around the world belonging to different religions and denominations—including Catholic, Orthodox, Protestant, Jewish, Buddhist and Hindu.

We worked with Buddhists, Muslims, Christians and others in Sri Lanka to heal wounds caused by the Easter Sunday bombing in 2019. We have provided significant aid to countries in Africa and Asia, without any discrimination between Muslims and non-Muslims. Last January, I led the most senior Muslim delegation ever to Auschwitz to show solidarity with our Jewish brothers and sisters.

Our work also focuses on bridging differences within Islam. This is why we gathered Muslims from more than 139 countries and 27 different Islamic sects to sign the groundbreaking Charter of Makkah in May 2019. The conference brought together Sunnis, Shiites, Druze and other Islamic schools of thoughts and sects.

The Charter is literally a global blueprint for instituting moderate Islam.

It defines how Muslims should engage with different faith groups and traditions and demonstrates our commitment to common challenges such as racial and ethnic discrimination and

climate change. It commands all Muslims to preserve the human rights of all people, especially women, children and minorities.

The Charter's success is critical to the success of humanity. Covid-19 has taught us the critical importance of uniting as one when faced with threats that imperil us all. Pandemics, like terrorism, know no international borders and offer no religion, race or creed any immunity. Our triumph depends on cooperation.

Together, we must build a safer and more prosperous world for future generations, a world where individuals are not killed in their mosque or church or synagogue or any house of worship. A world where all of our diversity is embraced, and our contributions appreciated.

The world we live in cannot overcome evil or the ignorant forces that seek to divide us, that want to use our religious and cultural diversity as a tool to incite conflict and clash, except if we engage in effective dialogue and understand the great wisdom of God Almighty in creating diversity and difference among people. The No-

ble Quran reiterates this point in multiple verses. However, the extremists ignore these verses, and if they recite them then they try to distort their meaning. But most often, they try to avoid bringing them up.

If we want to cement our presence among good people—the wise, the reformists and the peacemakers—first we need to be honest with ourselves and others and truly understand the wisdom behind our diversity and how this helps us be one human family. It consolidates our love and tolerance for one another. Through these common human values, we can rid our world of the evils of hatred, racism, extremism, violence and terrorism. In addition,

we must teach our children these values so they can be their spontaneous traits, emanating from their untainted hearts and minds.

With that, I just want to thank you once again for the invitation to join you today. I look forward to our discussion and your questions. Thank You.



Together, we must build a safer and more prosperous world for future generations, a world where individuals are not killed in their mosque or church or synagogue or any house of worship. "

— Dr. Mohammad al-Issa





The Charter of Makkah bringing the Islamic community together since 2019.

Health of Community Importance:

Dr. Al-Issa Speaks to the Multi-faith Virtual Symposium on the Charter of Makkah

This month marks one year since the pandemic affected the world in unimageable ways, including the global interfaith community. During the International Multi-faith Virtual Symposium on the Charter of Makkah, Dr. Al-Issa discussed the best ways to consolidate and build relationships moral values and the principles that religious groups share.

The symposium focused on the most prominent international efforts to build bridges of respect and harmony among the followers of different

faiths and cultures and promote coexistence and cooperation among human societies all over the world. It was attended by distinguished religious leaders, eminent scholars and the Muslim World League's partners around the world.

The Charter of Makkah offers Muslims around the world guidance on the principles that speak to the true meaning of Islam.

Following are significant excerpts from remarks by participants in the symposium:

Dr. Mohammad al-Issa:

- ” The Charter of Makkah sends a clear message not just to the Muslim world, but to the entire global community: We must put aside our differences and embrace religious diversity. Isolated and independent of one another, we will never overpower the voices of hate.”
- ” People are distinguished from other creatures only by how much we benefit others, and this is the basic principle that humans have. ”
- ” There is a religious principle that we have in Islam, and that is the best amongst us are those who help others. The more we help others, the better they are. ”
- ” The objective that the Muslim World League strives for is to work with our partners and friends from all religions. We have worked very closely with our friends and brothers from the Christian and Jewish faiths. We cannot work alone; I cannot work alone. Cooperation is key in moving forward.”
- ” The articles of the charter of Makkah talk about consolidating the relationships and values amongst many faiths and cultures and provide ways to deal with the clash of civilizations and ensure the safety and civility of communities around the world. They cultivate a sense of understanding amongst people that diversity and differences are a divinely ordained and not something that we should resist and fight. Diversity could be a basis for our unity. ”
- ” The Charter of Makkah continues to be guidance for Muslims around the world to guide them in a wide array of issues centered on the wellbeing of mankind and preservation of its dignity.”
- ” Human beings are facing a moral crisis as a result of the negative effects of globalization, such as the misuse of natural resources or any act that adversely affects the environment and transgresses the rights of future generations. It encourages the Muslim world to engage with international communities via rapprochement to build bridges of respect and harmony and form positive civilizational partnerships based on dialogue, understanding and mutual respect to serve mankind and contribute to its wellbeing. ”
- ” All Muslim countries have adopted the Charter as a reference point for their educational and cultural systems in a way that will affect generations to come. The Charter of Makkah is not only a message to the Muslim world, but to the world at large. It shows that Islam accepts and coexists with all religions. He further highlighted that the Charter has the support of all Muslim scholars and leading figures from the Muslim world. ”
- ” We are working with non-Muslim religious leaders to conduct workshops and training based on the values of the Charter of Makkah to show everyone that Islam is an accepting religion and believes in the divine wisdom inherent in the creation of differences amongst all.”

مؤتمر وثيقة ميثاق مكة المكرمة

Conference on "The Charter of Makkah"



The Charter of Makkah sends a clear message not just to the Muslim world but to the entire global community

Kathryn Lohre, Evangelical Lutheran Church in America and the Shoulder-to-Shoulder Campaign:

praised the Charter for representing and reflecting a remarkable historical ecumenical consensus in the Muslim world. She talked about how dialogue can withstand many differences. Diversity is a bridge to dialogue, understanding and cooperation. Moreover, she reflected on bridge builders and how they don't ignore the chasms of difference between people but in fact acknowledge those differences. They seek actively to build a structure that will help them and the generations to follow to

cross the divide. "Sometimes we meet in the middle, sometimes we traverse to each other's side to build empathy and to deepen the understanding, and the Charter achieves that very active bridge building," she said. She closed with the shared hope that is reflected deeply in the Charter, that people intend that the very best of their religious traditions and the actions of their religious communities contribute to a more peaceful, just and loving world. The Charter acknowledges the central role that women, youth—and their empowerment—will play in the flourishing of healthy communities for all people."



PAPAL VISIT TO IRAQ

Islam and Catholicism share a rich pattern of history and tradition of which cannot be understated. The two share a deep observance of prayer, poverty, and a personal relationship with Almighty God to receive blessings. In the end, both Muslims and Catholics seek the end goal of leading by example exactly how one devoted to God should act, to reach Heaven in death.

The beauty of these two religions is illuminated by Pope Francis's visit to Iraq in March. The leader of the Catholic Church arrived as a beacon of hope and peace in a beautiful, ancient land that has seen much trauma over the past two decades. The Iraqi people, Muslim and Christian alike, streamed into the streets on the chance that they might be able to catch even a glimpse of him. Pope Francis rode in a Popemobile without bulletproof glass as a way of removing barriers and sharing in the risks that Iraqis take every day.

This visit represents another cross-cultural endeavor pioneered in recent years by religious leaders across the globe to establish peace. Pope Francis has long recognized the impact he

has as the leader of the largest Christian denomination in the world, particularly in building confidence with the other Abrahamic religions. Visiting Ur, the ancient Iraqi city that Muslims, Christians and Jews believe to be the birthplace of Abraham, the Pope called for friendship and cooperation between world religions.

The messages that Pope Francis relays every day and the actions he takes align fully with the Muslim World League's mission. The three Abrahamic religions have a strong and unique relationship of long standing and shared role in leading interfaith dialogue and efforts to build global peace. The MWL has long embraced this relationship and works continually to strengthen it and make it a catalyst and inspiration for ecumenical efforts to build tolerance and promote love in communities across the globe. In 2017, Dr. Mohammad al-Issa visited the Vatican and met with Pope Francis. In 2019, Dr. al-Issa spoke with students at the Catholic University of America, enjoyed a tour of the Basilica of the National Shrine of the Immaculate Conception, and had a dialogue with the Archbishop of Washington, Milton Cardinal Gregory.



Pope Francis prays for war victims at Hosh al-Bieaa Square in Mosul's old city Sunday.



Pope Francis receives Dr. Mohammad bin Abdulkarim Al-Issa, secretary-general of the Muslim World League, at the Vatican.

It is in these discussions that religious leaders can promote faith as a means to end violence and hate throughout the world, particularly in the name of religion. It is up to religious leaders, who understand the scriptural basis of their faiths and have devoted their lives to contemplation and to study of scripture and the writings of great theologians, to encourage respect for different religious traditions and to seek common ground. People of all faiths benefit in a society where all faiths are respected and valued.

As he did in the dialogue he had with Dr. al-Issa, Pope Francis condemned the violence by ISIS and ISIL, extremist groups that twist and misrepresent the teachings of Islam in order to sow hate and fear. In the Christian New Testament, St. Paul describes faith, hope and love as three great and enduring spiritual gifts. The Pope's tour amidst the ruined Christian churches in Iraq, including a Mass in the skeleton of an ancient church that had been destroyed by those groups, illustrated the power of faith, hope and love to overcome hatred and adversity. Muslims would certainly agree.

Global leaders will look back on this visit as one of great importance. In a land devastated by the horrors of war, years of repression and violent extremist ideologies, hope shined through for a week. It gave everyone a glimpse

at what the future holds for those willing to do the hard work of building the bridges that lead beyond tolerance to appreciation and love of one's neighbors. The beauty of religion lies in the hope it creates in the heart, and the shared values of the world's greatest religions can be a torch that leads us out of the darkness and lights a permanent flame of peace.

The COVID-19 pandemic has tested our ability to remain hopeful, to endure the present and be inspired to emerge from the global lockdown with energy and optimism. As the world slowly begins to reopen and put this global trauma behind us, we must uplift those who have fallen prey to despair and harness the energy of those who have found their hope renewed. Faith leaders can do much to encourage this hope. Pope Francis made this historic visit at a time when world leaders were staying home and making only "virtual" visits. His visit to such a troubled land at such a troubled time, when people needed to feel renewed in their faith in God and themselves, was an inspiration to people of all faiths.

The Muslim World League continues to believe in the tenets that this visit exemplified by action. And it will continue to pursue that mission, God willing.



Project Light Speed:

The Muslim Woman Behind the United States' First COVID-19 Vaccine

On December 11, 2020, 336 days after WHO first announced the spread of SARS-Cov-2 in Wuhan, China, the Food and Drug Administration cleared the Pfizer-BioNTech vaccine for immediate distribution. For Dr. Özlem Türeci and her husband, Dr. Uğur Şahin, co-owners of BioNTech, this moment marked the culmination of 20 years of research on the use of a modified genetic code to trick the body into developing antibodies.

As chief medical officer, Türeci, now 53, has been leading BioNTech in its mission to create a cancer treatment using this same technique. The company has created two kinds of cancer vaccines by using mRNA technology to train a person's immune system to fight a malignant tumor, although neither has yet been approved for public use. While the research primarily focused on cancer, Türeci and her team also uncovered a large amount of information about viruses. When the couple first read about COVID-19 in January 2020, they knew they had the tools to combat it. BioNTech immediately pivoted, dedicating more the 400 staff to the project.

Although the goal was never to produce the first coronavirus vaccine on the market, the company's head start in research and technology set it ahead of the pack. By the end of 2020, millions of BioNTech's vaccines were already distributed in the United States, and the federal government had ordered an additional 100 million doses.

With FDA approval and a partnership with the U.S. government, BioNTech stocks skyrocketed, making the pair billionaires and the first Turkish

Germans among Germany's top 100 wealthiest people. But rather than money, it was a love of science and a strong sense of responsibility that drove the couple. When Türeci saw how quickly and lethally coronavirus was spreading, there was no question that her company would take action.

"We saw this as a duty," Türeci said in an interview. "We have technologies and capabilities and



Dr. Tureci

skills in the company... which make us think that we can contribute."

Türeci and her husband are both children of Turkish immigrants and met in German medical school. With a surgeon father and biologist mother, Türeci saw the medical field as a natural choice, saying, "I could not imagine any other profession even when I was a young girl." She and Şahin married in 2002 and founded BioNTech in 2008. Today, the company has over 1,300 employees from 60 countries, more than half of them women. On the morning of their wedding, both Türeci and Şahin were working in the lab.

Over the course of her career, Türeci has received many prestigious rewards, including the National German Sustainability Award and the Financial Times Person of the Year. In 2019, Şahin was awarded the Mustafa prize from the organiza-



Dr. Şahin

tion Khuddame Mustafa (the Servants of the Prophet). This prize celebrates Muslims in science and technology and was awarded to Şahin for his development and clinical testing of mRNA-based cancer vaccines.

Several recent profiles of the pair, including in The Washington Post, The New York Times, and The Wall Street Journal, have highlighted their religious faith, but Türeci and Şahin are far from the first Muslim scientists to have an impact on western culture. In fact, Islam's rich intellectual history encourages science and learning.

"Knowledge is part of the creed," said Dr. Farouk El-Baz, former science adviser to President Anwar el-Sadat of Egypt. "When you know more, you see more evidence of God."

Recent fame and prosperity have not transformed the pair's modest lifestyle. "I don't have a car. I'm not going to buy a plane," said Şahin, "What's life-changing is to be able to impact something in the medical field." On learning the efficacy data of their vaccine, the couple celebrated by brewing a cup of Turkish tea at home in their apartment.



MUSLIM WOMEN DOCTORS: AGES AHEAD

Contrary to a popular misconception in the Western world, Muslim women for ages have played significant roles in their societies and communities, including filling professions of public respect. In fact, there is a strong tradition of Islamic women practicing medicine and pursuing medical occupations as far back as the mid-600s AD. The American tradition, instead, dates back only to the mid 19th century.

While in America, the first women doctor, Elizabeth Blackwell, obtained her MD degree in 1849; the world's first great female medical practitioner came from Islamic culture. Rufaida Al-Aslamia is known as an Islamic medical worker and is recognized as the first female nurse and surgeon in history.

She was born in 620 into a family of solid medical traditions and was educated in medicine directly by her father, Sa'ad Al Alamy. It has been documented that Rufaida provided medical care to the soldiers during the jihad wars of the seventh century. While during peace times, to better serve the Muslim community, she practiced medicine in a mobile care unit. To commemorate her contribution to medicine, the Royal College of Surgeons in Ireland at the University of Bahrain established the prestigious Rufaida Al-Aslamia Prize.

Another milestone for women practicing medicine is marked by the activity of Ibn Zuhur's daughters. Ibn Zuhur, who was also a doctor, shared his clinical experience with his daughters and gave them a strong formation in medicine. They have forever become role models for the other Muslim women who followed in their footsteps as medical practitioners. Ibn Abi Usaybi'a, a 13th-century medical historian, described them as "âlimatin fi sina'at al tibb wa al-mudawah" (two lady scholars in medicine and therapeutics).

Islamic medicine flourished during the Middle Ages, when it produced some of its most signifi-

cant achievements and a number of skillful Muslim women doctors. Illustrations showing women performing surgery appear in the manuscript *Cerrahiyet'ül Haniyya* (The Imperial Surgery) by Şerefeddin Sabuncuoğlu (1385-1468).

In addition to having the same knowledge and skills as their male colleagues, early women doctors in Islamic traditions could better understand female patients and their health conditions, and they were often sought by both women and their fathers and male guardians, who preferred women patients to be examined by another female.

Today Muslim women practice medicine at the world's most prestigious medical centers and medical research institutions, where they are inspired by the Islamic values with which they were raised to deliver critical care, discover new life-saving drugs, and develop pioneering therapies.



In Islamic tradition, women practicing medicine and pursuing medical occupations roots back to the mid 600 AD. Today, Muslim women are still recognized among the world's leading doctors.



Image of a machine learning lab.

Muslims Using Technology in the Fight Against COVID

To completely defeat an unseen enemy – one that traveled virtually undetected to every corner of the world, has pressed the global public health infrastructure to the point of near collapse and confined much of the world’s population to their homes for the past year – researchers, scientists and leaders had to not only test the limits of human ingenuity, but also the boundaries of technology.

At the beginning, much of the fight against COVID-19 was a low-tech challenge as nations, rich and poor, struggled to provide their front-line medical and emergency personnel with

adequate supplies and equipment in the face of an unprecedented challenge.

But the solution – developed at groundbreaking speed by leading biotechnology and pharmaceutical companies – involved using the world’s most advanced and innovative technological capabilities. While companies like Pfizer and Moderna, among others, work with governments to effectively and efficiently distribute COVID-19 vaccines around the world, recent discoveries by the Massachusetts Institute of Technology’s Jameel Clinic show how harnessing the power of artificial intelligence, machine learning and-

“ The Quran teaches Muslims to be give back and positively contribute to their communities. It instructs Muslims to be selfless in their acts and humble in their victories. These are the true principles of Islam that can be found at the very core and hearts of Muslims. ”

computational science could pave the way for the future of treatment and cures.

Artificial intelligence and machine learning have played a critical role in human innovation. they are the force behind self-driving vehicles, a technology many believe will dominate roads in the future. Machine learning has helped fight on-line fraud and cyberbullying. It has aided radiologists in diagnosing cancers that would have otherwise been missed. It also contributed to shorter wait times in emergency rooms, which has resulted in better outcomes for patients.

But machine learning had not been used successfully to find vaccines until the Jameel Clinic at MIT. At the Jameel Clinic, they decided to apply computational machine learning technology to discover rapid, cost-effective life-saving vaccines and cures to diseases currently plaguing our world.

Just before the coronavirus began spreading around the world, the Jameel Clinic made a breakthrough. They identified halicin, one of the first new antibiotic compounds discovered in decades, a drug shown capable of neutralizing

many of the world’s most lethal disease-causing bacteria. The Clinic’s computer research methodology examined hundreds of millions of potential therapeutic compounds in order to isolate halicin, which can kill potentially infective bacteria, including some strains resistant to other antibiotics.

On the heels of this discovery, a team of computational experts along with members of the Jameel Clinic applied this same methodology to develop a machine learning-based approach to find FDA-approved drugs that could potentially be used against COVID-19, especially in the elderly. In a recent report, this computational methodology accounts for changes in the lung’s gene expression produced by disease and aging. According to MIT, the combination “could allow medical experts to more quickly seek drugs for clinical testing in elderly patients, who tend to experience more severe symptoms.”

This pandemic has tragically shown how traditional approaches to pathogen research and therapeutic developments is too slow and too expensive to keep pace with a threat as deadly and wide reaching as COVID-19.



J-Clinic
ABDUL LATIF JAMEEL CLINIC FOR
MACHINE LEARNING IN HEALTH

The Jameel Clinic is an initiative of Community Jameel at the Massachusetts Institute of Technology focused on artificial intelligence and machine learning in healthcare.

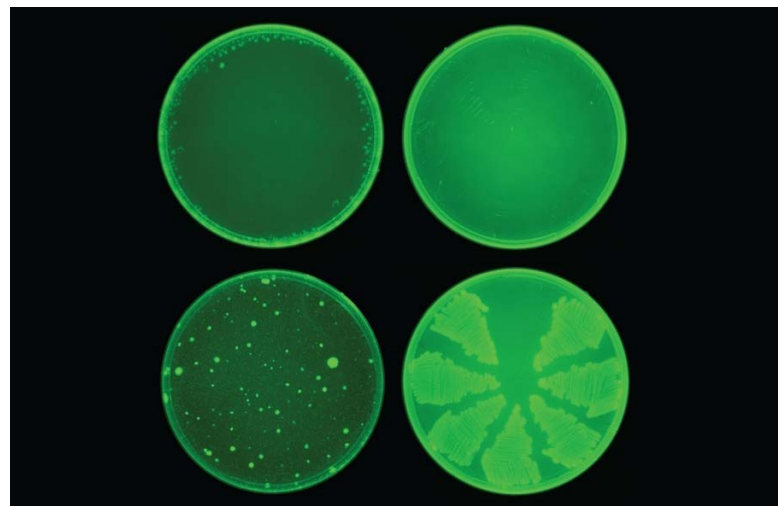
For decades, Community Jameel, a global philanthropic organization and partner of MIT's Jameel Clinic, has tried to fill the gap. Founded by the late Abdul Latif Jameel in Saudi Arabia, the organization has been working with institutional partners and investing in medical research initiatives to advance the technical practices and methods of the future. For example, the Imperial College of London's Jameel Institute (J-IDEA) has provided critical research and data to governments and the public on COVID-19.

If the world wants to be better prepared for future global pandemics, we must embrace new and innovation technologies. This has been the mission of Community Jameel's philanthropy for 75 years: to support and advance research to solve the most pressing global challenges, including new approaches to ending poverty, ensuring food and water security, improving educational outcomes for refugee students, and applying machine learning to advance health research.

From the innovative work being performed at MIT's Jameel Clinic to the husband-and-wife team that helped discover a COVID-19 vaccine, Muslims and Muslim-founded organizations have significantly contributed to vital research and developments throughout the global pandemic.

The Quran teaches Muslims to be give back and positively contribute to their communities. It instructs Muslims to be selfless in their acts and humble in their victories. These are the true principles of Islam that can be found at the very core and hearts of Muslims.

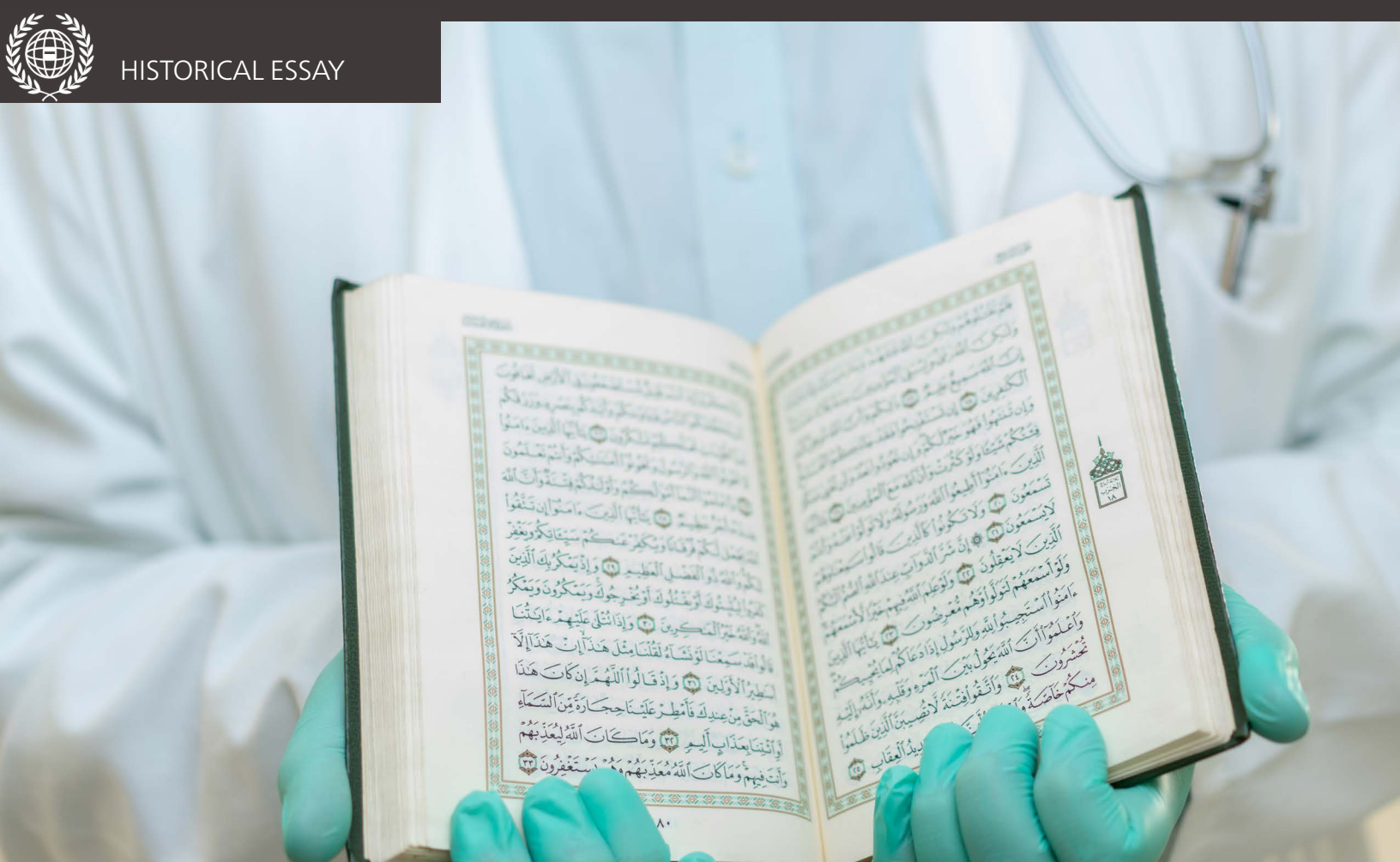
And while the fight against COVID-19 is far from over, the past year showed the world that only by coming together, giving to those less fortunate and uplifting our family, friends, neighbors and loved ones, can we overcome the challenges of the global pandemic. Across the globe, governments, international non-governmental organizations, international corporations, philanthropic organizations and many others came together to do just that.



-His Majesty King Salman bin Abdulaziz Al Saud delivering remarks during the emergency G20 to discuss the global response to COVID-19.

-The late Abdul Latif Jameel, founder of Community Jameel.

-Researchers at MIT used a machine-learning methodology to identify Halicin.



A Muslim healthcare worker presents the Quran

A History of Helping:

How Ancient Muslim Societies Influenced Modern Medicine

In the Quran it is written, "...whoever saves a life, it will be as if they saved all of humanity." These ancient words of wisdom still ring true to this day. Healthcare workers across the globe have been working tirelessly and fearlessly on the frontlines of this pandemic. Through these tumultuous times during the Covid-19 outbreak, society has developed a newfound appreciation and respect not only for medical professionals, but for the sciences of medicine that have brought us newfound hope through vaccines.

From the dawn of time, there have been countless contributions that have paved the way for today's healthcare system, but undoubtedly, Muslim societies have significantly laid the foundations of modern medicine and science. Centuries ago, Islamic medicine and practices were considered to be the most advanced in the world. To this day, we can credit Islam for numerous medical discoveries and for developing patient care standards, hospitals and pharmacies.

Muslims Modernizing Medicine

Muslims have contributed to society in countless ways through medical findings, such as identifying scabies, hay-fever and sleeping sickness. Significant medical findings and practices abounded in Ancient Islam, like Ibn Zuhr (1094 – 1163), who introduced artificial feeding through a gastric tube, a practice still used to this day; Ibn Al-Nafis (1212 – 1288), who was the first person to discover pulmonary circulation; and Ibn Sina (980 – 1037), who conceived of the idea to use oral anesthetics such as opium.

One of the best-known forerunners of modern medicine is Abbas Al-Zahrawi (936 – 1013), known as Albucasis in the West. He was an Andalusian-Arab physician and scientist who is considered the “father of modern surgery.” While practicing as a surgeon, he specialized in curing disease through cauterization. Al-Zahrawi spent more than 50 years practicing and teaching in this field, and wrote *Al-Tasrif*, a 30-volume encyclopedia of medical practices. *Al-Tasrif* covered a wide array of medical topics, everything from childbirth to dentistry. Beyond his teachings, Al-Zahrawi also invented tools and devices to be used in surgery.

It is significant to note that Abbas Al-Zahrawi stressed the importance of moral codes while practicing medicine. He believed that maintaining a positive doctor-patient relationship was critical to care and that one should treat their patients irrespective of their social status.

Perhaps one of the most historically renowned leaders in the medical field is Ibn Sina (980 – 1037), also known as Avicenna, who earned the title “the prince of the physicians” and had a huge influence on the world of medicine, especially in Europe. His *al-Qanun fi’l tibb*, or “The Canon of Medicine,” classified and described diseases and their causes and was the final authority on medical matters in Western Europe for nearly five centuries. Beyond the contributions he made in advancing pharmacology and clinical practices, one of his greatest

contributions is considered to be his philosophy of medicine. What today is known as “holistic” treatment began with Ibn Sina, who believed that the best way to treat a patient was by addressing both physical and psychological factors, as well as combining diet and drugs. Ibn Sina can also be credited as the first person in history to correctly document the anatomy of the human eye.

Many of Ibn Sina’s teachings ring true to this day. He believed that tuberculosis was contagious, a theory that was disputed at the time by Europeans but which we now know is correct. Diabetes, a condition that affects many of us now, was described by Ibn Sina in detail.

Hospitals through History

One of the most significant contributions of Islamic medicine was the development of efficient hospitals. Arabic hospitals served all who sought treatment and never let a patient’s race, religion, gender, age or economic status affect their care. By law, only qualified and licensed physicians were allowed to practice medicine in these hospitals. The hospitals were sectioned off by wards to treat specific conditions, and had separate departments for outpatient and inpatient treatment. For the first time in history, these hospitals kept records of the medical care used to treat patients. There were also teaching hospitals used to educate the next generation of medical students.

Tulum hospital is a great example of the kind of medical care we strive to provide in our modern age. Tulum hospital was founded in 872 in Cairo. It contained a library with more than 100,000 books. When a patient was admitted, the hospital stowed their clothes and belongings and provided them with special apparel, similar to today’s practice. When discharged, patients received five gold pieces to help support themselves until they were physically able to return to work. In 981, not long after the construction of the Tulum Hospital, the Al-Abudi hospital was built in Baghdad. It was staffed

with interns, residents and consultants, all of whom were given access to the best supplies and equipment available at the time.

Where Islamic medicine truly excelled was in hospital patient care, which was influenced by strong Islamic moral values. Treating others kindly was a considered an essential part of the practice of medicine. Those suffering from mental illness were not dismissed, as was common practice at that time and long afterward; instead, Islamic hospitals brought humanity to patient care. At night, music and storytelling were commonly used in the hospital to help soothe patients.

Paving the Way for Pharmacies

Muslim cultures helped shape modern pharmaceutical practices. What is now common to us all, a pharmacy, actually began in the 9th century in the Islamic world. Muslim pharmacists needed to pass examinations to become licensed professionals and had to pledge that they would follow the physician's prescriptions.

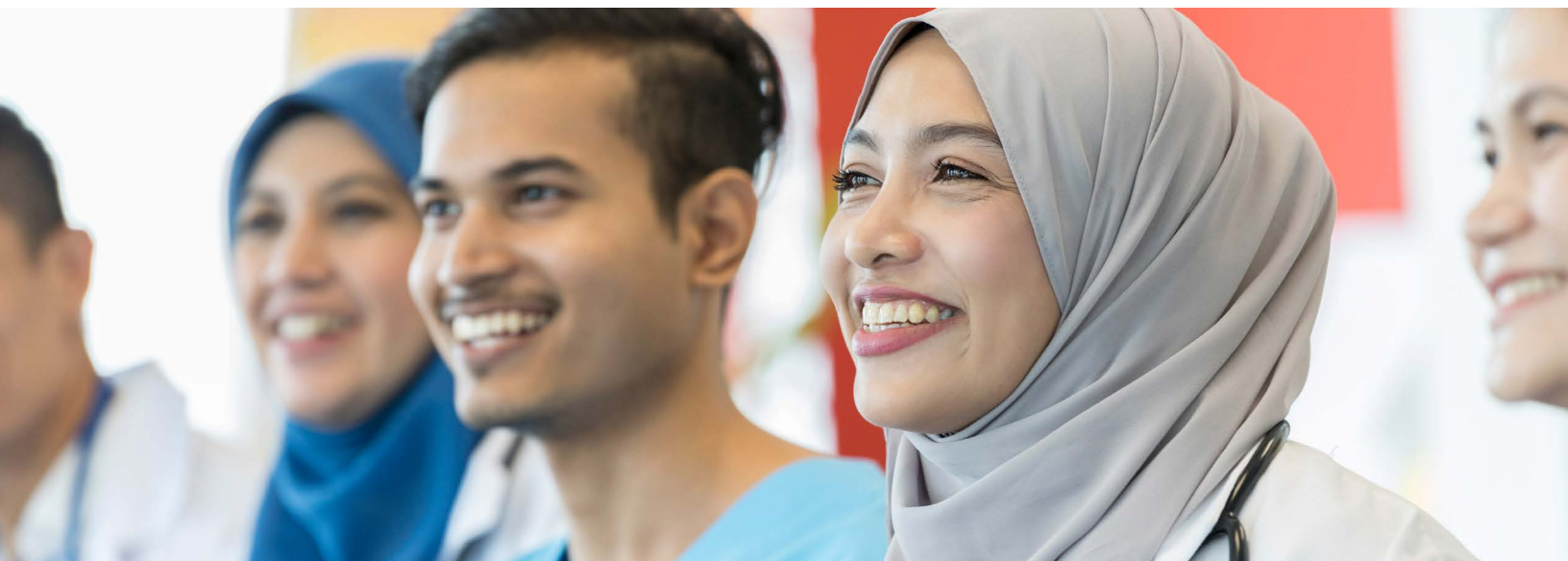
Early pioneers were Yuhanna bin Masawayh (777 – 857), who began the scientific applications of therapeutics, and Hunyan ibn Ishaq

(809 – 873), who wrote a book on the pharmaceutical effectiveness of drugs through methods of experimentation. Muslim influence on modern pharmacy and chemistry Muslims can be seen in the significant number of terms that originally derived from Arabic, such as, "alcohol," "aldehydes," "alembic," "alkali," "drug," and "elixir."

A Life-Saving Legacy

Though we may take for granted the hospitals that are always there to heal our loved ones, the medicine readily available for our illnesses, and the devotion of our skilled doctors and nurses, these services to humanity were often pioneered by Islamic visionaries. Muslims were the early torchbearers and trailblazers of scientific research and practices.

In Islam, it is a duty to care for the poor, sick, and disabled, and the health needs of communities globally are served because of Muslim patronage to medicine through history. The Prophet said, "God has sent down a treatment for every ailment," and thanks to many Islamic philosophers, scientists, inventors and curious minds, we continue to overcome the medical challenges presented to us, especially during this pandemic.



A Muslim doctor smiles with a diverse group of colleagues

THE CLASSICAL INFLUENCE ON ISLAMIC MEDICINE

European and Islamic thought have interconnected and merged for thousands of years. The medical innovators of the ancient Muslim world may have greatly influenced modern medicine, but they in turn were students of the pre-Islamic Mediterranean world. In the early days of Islam, Muslims gained their medical knowledge from Ancient Greek and Roman sources.

Islamic physicians drew knowledge from Syria, Egypt and ancient medical texts in the Byzantine Empire. The great works of the ancient Greek thinkers were valued in the Middle East. Many of these books, which were lost to Europe after the fall of the Western Roman Empire, only survive to this day because the Muslim sought to collect knowledge, valuing this ancient wisdom and in many cases, translating it into Arabic.

These writings had a significant impact on Islamic thought. The works of Hippocrates, Galen, Dioscorides, and Oribasius had a huge influence on Islamic medicine, and in turn the thinkers of the Islamic world would come to influence European thought as well.

In his youth, Ibn Sina was taught lessons from philosophy books such as Porphyry's Introduction, Euclid's Elements, Ptolemy's Almagest and by the philosopher Abu Abdullah Nateli. He extensively studied Aristotle's Metaphysics, reading it forty times over a year and a half.

The works of Galen were particularly influential on Ibn Sina's work and all Islamic medicine. His ideas about anatomy, physiology, disease and the treatment of disease remain a foundation of Islamic medicine today. In his medical encyclopedia The Canon of Medicine, Ibn Sina brought together the contesting ideas of Aristotle and Galen in one of the great works of the ancient Islamic world.

Humble reverence for the classical traditions allowed Islamic medicine to advance and reach the pinnacle of knowledge at a time when Europe endured the Dark Ages. This respect for the wisdom produced by other cultures has benefitted all of us across the world today.



An Eighteenth-century portrait of Galen by Georg Paul Busch



A doctor in Cape Town, South Africa takes vitals from a young patient.

Meet Arab Women Blazing Trails in Health & Medicine

The Middle East and North Africa region has been the birthplace of remarkable women professionals in the medical field. Today, female medical graduates are outnumbering their male colleagues and competing with them for leadership positions at health-care institutions. Across the region, these numbers include talented and dedicated health workers who, today more

than ever, have proven vital in facing the world's most pressing health issues – from the current global pandemic, to genetics—and the ongoing fight against cancer.

Amidst the devastating coronavirus pandemic, Dr. Nouf Abdul Aziz Al-Anazi has been vocal about early intervention for heart patients. Al-

Anazi, considered among Saudi Arabia's most distinguished national cardiologists, stands out as the first woman to lead a heart disease center in the country. She was recently appointed director of the King Fahd Cardiac Center (KFCC) at the King Saud University Medical City (KSUMC). She previously held several high-profile positions, including head of the quality unit at the KFCC and director of the interventional cardiology program at KSUMC.

Al-Anazi, who is also an assistant professor and consultant in interventional cardiology, graduated from KSU's College of Medicine in 2007. She is board-certified by the Saudi Commission for Health Specialties as well as the Royal College of Physicians and Surgeons of Canada. Her impressive résumé includes many specialized courses, medical seminars and conferences, and she is widely published in scientific journals.

Also on the front lines of pandemic response and a strong advocate for the role of women,

former minister Dr. Samira Merai is currently head of the pulmonary diseases department at the Rabta hospital in Tunis. Leading by example, the former health and women's affairs minister was the one who took blood samples from the first suspected cases received in the hospital and suggested placing all COVID-19 patients in one centralized hospital in order to facilitate their treatment and contain the disease.

Dr. Merai is a member of the European Respiratory Society and the American Thoracic Society. She served as the Chair of the Committee on Women's Rights of the Parliamentary Assembly of the Mediterranean in 2014. In 2015, she was appointed Minister of Women, Family and Children in the government of Prime Minister Habib Essid, and subsequently as Minister of Public Health in the cabinet of Youssef Chahed.

HE Dr. Maryam Matar of the United Arab Emirates is also a strong advocate of empowering the community in healthcare. She is the first



Dr. Nouf Abdul Aziz Al-Anazi, Director of the King Fahd Cardiac Center

woman Director General of the Community Development Authority, which contributes to the achievement of the social development objectives of Dubai Strategic Plan. Dr. Matar serves as chairperson or senior advisor in more than 15 international, regional and local committees for women in STEM, youth leadership and preventive healthcare initiatives. She also advocates for public education and awareness of genetic disorders across region. In 2004, she conceived a national body on genetic disorder, awareness and prevention, and is the founder and chairperson of the UAE Genetic Diseases Association.

Dr. Matar has been named one of the “100 smartest people in the UAE” and listed in the “top 100 most influential Arabs in the world” by Arabian Business since 2013. She has been recognized as the most powerful scientist in the UAE and was chosen among the 20 Arab scientists mak-

ing the greatest contribution to humanity by the British Scientific Community in 2016.

When Dr. Mona Obaid recently joined Lilly Saudi Arabia (Eli Lilly and Company), she became the first woman to hold the position of Medical Director in Saudi Arabia’s pharmaceutical industry. Renowned for her works in neurology, Dr. Obaid worked for eight years at King Fahad Medical City (KFMC) in various fields and leadership roles in the movement disorders program. Dr. Obaid studied at King Saud University, Security Forces Hospital and the University of Alberta’s the Neurology Residency Program, as well as the University of Joseph Fourier in France and the Healthcare Leadership Academy of the Saudi Commission for Health Specialties. She is an active board member of the Saudi Neurology Board, Saudi Neurology Society, and Saudi Alzheimer’s Association.



Dr. Maryam Matar, Founder of the United Arab Emirates Genetic Diseases Association.

Dr. Hayat Sindi is a Saudi Arabian medical scientist and was one of the first women in the Consultative Assembly of Saudi Arabia. Dr. Sindi went to King's College London to earn a degree in pharmacology with honors in 1995. Five years later, she became the first woman from the Persian Gulf to obtain a Ph.D. in biotechnology from Cambridge University. She went on to become a visiting scholar at Harvard University, where she co-founded a non-profit organization called "Diagnostics For All" devoted to creating innovative, low-cost diagnostic devices for people who live in countries with high levels of poverty. The organization developed a lifesaving tool that helps detect disease by analyzing body fluids. The device is the size of a postage stamp and costs just a penny.

In 2009, she became the first Arab woman to win a fellowship in the American innovation network PopTech, and in 2010, she received the prestigious Prince Khalid Award for her innovative approach to the sciences. She has continued to make major contributions in the field of medical testing and biotechnology and was recently ranked by Arabian Business as the 19th most influential Arab in the world.

The role of Arab women in the 21st century continues to evolve quickly. These are just a few of the recent outstanding success stories of women who are excelling in the health sector. We can only expect to see increasing numbers of inspirational women excelling their fields.



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