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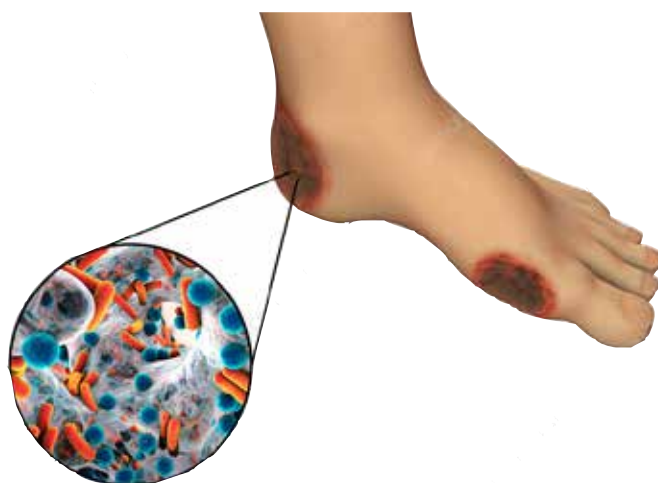
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Amputation prevention in Diabetic Foot



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Role of Microsurgery and Importance of a team based approach

Diabetic foot ulcers (DFUs) are a common complication of diabetes. The reported lifetime probability of developing a DFU approaches 34% in patients with diabetes. Approximately half of the DFUs progress into diabetes-related foot infections (DFIs), which may lead to lower limb amputation. Patients with a lower limb amputation have a reduced quality of life, and remarkably, patients with a DFU fear lower limb amputation worse than death. Lower limb amputations above the level of the ankle are life threatening events, as they are known to be an independent risk factor for premature death. Five-year mortality rates of more than 55% have been reported, similar to the prognosis of pancreas carcinoma with local metastasis and worse than that of laryngeal carcinoma. In addition to the risk of amputation, DFUs can result in morbidity due to immobilisation, social isolation, and the necessity to interrupt work. For both society and the healthcare system, DFU-related costs are significant. In cases of limb-threatening DFI, the primary goal is to control the infection while maintaining as much functional limb as possible. Patients require immediate hospitalisation with a combination of antimicrobial treatment and aggressive debridement as main components for



fighting infections. Frequently, extensive soft tissue defects with exposed vital structures such as bone or joint result in complex wounds, limiting the mobility of the patient and posing a risk for the development of new (deep) infections. Lower extremity wounds that are comparable in complexity include open fractures with a mix of exposed bone, tendon, and soft tissue. These wounds necessitate rapid coverage within 3-14 days to prevent deep infection or limb amputation. The introduction of free tissue transfer has been shown to be a reliable and effective strategy for reducing deep infections, fracture-related infections, and amputation rates while also significantly lowering the costs of care to society.

Diabetic foot disease is a major cause of morbidity worldwide and a leading reason for non-traumatic lower-limb amputation. In India — with one of the world's largest diabetic populations — the burden is particularly high. Limb salvage strategies aim to maintain a functional, sensate,



stable limb by treating infection, restoring vascularity, preserving viable tissue, and reconstructing defects. Plastic surgeons, especially those trained in microsurgery, play a central role in reconstructive efforts that can convert potential amputations into salvaged limbs with good long-term function.

Case burden in India

- Prevalence of diabetes in India is high and growing; estimates in recent years placed India among the top two countries globally by absolute numbers of people with diabetes. Consequently, diabetic foot complications — neuropathy, ulceration, infection, and critical limb ischemia — are common.
- Incidence: Diabetic foot ulcers affect approximately 4–10% of diabetic patients annually in many settings; lifetime risk of a foot ulcer in people with diabetes is often quoted around 15–25%. India-specific studies report wide variation, but many tertiary centers see hundreds of diabetic foot admissions annually; regional referral centers may manage thousands of patients over several years.
- Amputation rates: Major and minor amputation rates remain high in India compared with many high-income countries, driven by late presentation, limited access to vascular and multidisciplinary care, socioeconomic barriers, and high infection burden.
- Health system impact: Diabetic foot disease leads to prolonged hospital stays, repeated surgeries, high antibiotic and wound-care costs, loss of productivity, and significant psychosocial effects.

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Role of the plastic surgeon in limb salvage
Plastic surgeons bring expertise in wound assessment, soft-tissue coverage, and reconstructive planning — essential elements in limb salvage. Key roles include:

1. Wound debridement and coverage planning
 - Aggressive but tissue-conserving debridement of necrotic tissue and control of infection are prerequisites.
 - Plastic surgeons plan staged reconstruction, selecting appropriate timing and techniques for soft-tissue coverage once infection is controlled.
2. Selection and execution of reconstructive options
3. Functional restoration
 - Sensory restoration (when possible), padding the plantar surface, and creating durable, weight-bearing skin are crucial to reduce recurrence.
 - Tendon and joint salvage procedures may be coordinated to preserve biomechanics.
4. Multidisciplinary coordination
 - Plastic surgeons work within teams including diabetologists/endocrinologists, vascular surgeons/interventional radiologists, orthopedic surgeons, infectious disease specialists, podiatrists, physiotherapists, prosthetists, and wound-care nurses.

Microsurgery in the diabetic foot — indications and techniques Microsurgical free tissue transfer has become a cornerstone for salvaging limbs that would otherwise require major amputation. Common indications include:

- Large soft-tissue defects with exposed bone, joints, or hardware.
- Failed local/regional flaps or when local tissue

beds are unsuitable due to infection, scarring, or poor vascularity.

- Need for durable weight-bearing plantar reconstruction.

Common free-flap choices

- Anterolateral thigh (ALT) flap: versatile, large skin paddle, can be thinned, amenable to sensory coaptation.
- Latissimus dorsi muscle or musculocutaneous flaps: robust vascularity, useful for obliterating dead space.
- Medial sural artery perforator, radial forearm, and other perforator flaps depending on defect size and donor-site considerations.

Revascularization and recipient vessels

- Microsurgical success depends on adequate in-flow/outflow. Many diabetic patients have peripheral arterial disease (PAD). Collaboration with vascular surgery or interventional radiology for endovascular or bypass revascularization may be necessary before or in conjunction with free flap reconstruction.
- Use of vein grafts, arteriovenous loops, and selection of distal recipient vessels are techniques to overcome poor local arterial inflow.

Outcomes and benefits of microsurgical limb salvage

- When successful, microsurgical reconstruction can preserve limb length, allow ambulation with native limb, reduce need for energy-intensive prosthesis, and improve quality of life.
- Reported flap survival rates in diabetic patients are generally high in experienced centers (often >90%), though complication rates (infection, thrombosis, partial flap loss) are elevated compared with non-diabetic cohorts.
- Functional outcomes depend on infection control, vascular status, neuropathy, and rehabilitation.

Challenges specific to India

- Late presentation and advanced infection, delayed referrals: Many patients present with deep infection and osteomyelitis, reducing salvage options, furthermore referring doctors seldom know at what point a patient is to be referred.
- Limited vascular services: Access to timely angiography, endovascular therapy, or bypass surgery is variable, particularly outside tertiary centers.
- Resource constraints: Microsurgery is resource- and labor-intensive (operative time, ICU-level post-operative monitoring, need for re-exploration capability).
- Comorbidities and glycemic control: Poor diabetes control, malnutrition, and other comorbidities increase complications.
- Socioeconomic factors: Cost barriers, transportation, and patient adherence to follow-up and offloading can limit success.
- Training and workforce: Microsurgical expertise is concentrated in some tertiary centers; broader capacity-building is needed.

In India's high-burden setting, limb salvage for the diabetic foot is both a clinical imperative and a systems challenge. Plastic surgeons, particularly those skilled in microsurgery, are essential to reconstructive strategies that can prevent major amputations. Success depends on early intervention, coordinated multidisciplinary care, adequate vascularization, and systems-level investments in training and infrastructure. When appropriately applied, microsurgical reconstruction offers high rates of limb preservation and meaningful improvements in patients' function and quality of life — making it a critical component of diabetic foot care in India.

How we the darker days of Lighted life with a team power

The implementation of the Post-Intensive Care Syndrome (PICS) program in hospitals represents a paradigm shift in critical care that prioritizes holistic recovery and survivorship. Many hospitals recognize the long-term burden of critical illness. PICS mitigation will be essential to improve the quality of life of the patients discharged from ICU and their families; it optimizes the recovery pathway post-ICU. PICS is increasingly noticed as a significant sequela of critical illness that affects ICU survivors; it encompasses a range of impairments—physical disability, cognitive dysfunction, and psychological distress—that persist after a shift from the ICU.

IQRAA Hospital has been giving the support for the implementation of the PICS concept throughout and has begun multidisciplinary approaches that integrate the continuum of critical care. A multidisciplinary team com-



prising a critical care physician, clinical pharmacist, physiotherapist, respiratory therapist, psychosocial counsellor, and dietician, will assess all critical care survivors who meet PICS criteria and provide support to those exhibiting symptoms using both pharmacological and non-pharmacological approaches.

We began the journey with the concept of PICS with minimum members in its initial phase two years back with the spark of the concept given by our departmental head, though we began with his instructions, the dilemma revolved around how the execution and outcome would be because we didn't have a proper reference from

India. However, we began and communicated about the concept to the patient and family, which was the crucial step we felt. The PICS visit was wholeheartedly welcomed by the patient's family, and it provided more space to communicate about questions, concerns, and unaddressed issues of the patient as well as the family. The team paved a common path to the primary and ICU physicians, which benefited patients' continuity of care. We had challenges also in order to spread the concept among other physicians and authorities; obviously, we met the question, why is PICS required? For that, we created

a leaflet and met them one by one. We talked about the concept and the visits we had done and the experience we felt. The outcome of the teamwork is practically done to mitigate PICS. The team made a PICS card to familiarize the patient's family with the intention of the visit. The card explains the role of team members, and we collect their address and contact details for future purposes of communication through phone follow-up. The PICS awareness video achieved a huge space in the hospital departments and public; it explains how a critical care admission affects one's life personally, socially, and vocationally even after survival from the critical illness

and how our team helps them to overcome the hurdles of post-intensive care syndrome. The support of the Group General Manager of our hospital needs to be mentioned for the execution of the thought of the awareness video; the media personnel and finance department of the hospital backed with us in this journey. We have been conducting PICS phone follow-up once a week for selected patients who have been shortlisted according to their present conditions after discharge. This created a bond with the PICS team and family, which ensured that they were free enough to explain their issues and concerns during this time. We also initiated PICS OP in our hospital. During the visit, they raised their concerns and doubts regarding the patient's health condition, feed etc. The emotional distress of the patient as well as the family was ad-

dressed remarkably during this time through communication or observing them. Here, time is the key factor that provides them a space for discussion and expressing their internal thoughts. These visits paved a good interaction with the primary physicians; also, they started suggesting the PICS team to see the patient and family during their review visits. We really felt that the core outcome of the PICS is accomplishing step by step with these references of our senior physicians and of course we are delighted for the recognition and it gives immense zeal for the further moves. With the utmost zeal we continue our efforts of releasing many lives drowned in the PICS and expecting that many institutions could be able to follow this path, the journey continues...

EVOLUTION OF IQRAA COAGULATION LABORATORY



Dr. Javed Ahammad M.M

Iqraa International Hospital & Research Centre is home to the only specialized coagulation centre in North Kerala and is recognized as one of the best coagulation testing centres in Kerala. This unique facility addresses a critical gap in the region, ensuring that patients no longer need to

travel long distances for specialized coagulation tests. With only a few such centres available across India, Iqraa's state-of-the-art coagulation department stands out for its excellence in diagnostics and patient care, providing a comprehensive range of specialized tests and services.

Current Services

- Comprehensive Coagulation Workup
oBleeding time (modified Ivy's), PT, APTT, TT, factor XIII screen, mixing studies, factor assays (Fibrinogen, factor II, V,VII,VIII, IX, X, XI, XII, and vWF:Ag assays)
- Thrombophilia Workup (Protein C, Protein S, Antithrombin III and Factor V Leiden Mutation)
- Antiphospholipid Antibody (APLA) Workup (Test for Lupus anticoagulants, Anti Beta-2 glycoprotein IgG and IgM, Anticardiolipin IgG and IgM)
- Test for factor VIII inhibitors (inhibitor screen and factor VIII inhibitor assay-Bethesda assay)
- Thromboelastography (TEG)
- Tests for Hemolytic Uremic Syndrome (HUS) - Complement Factor H (CFH) & its Inhibitors

Over the last five years, the hemostasis division has performed 450 detailed workup for bleeding disorders and diagnosed several bleeding disorders including hemophilia and other rare inherited bleeding disorders, highlighting its crucial role in improving healthcare outcomes. Additionally, we diagnosed two cases of type 3 VWD who were experiencing severe bleeding issues, and were previously mislabelled as hemophilia due to the reliance on factor VIII testing alone, conducted elsewhere, without taking the full patient history into account. This highlights the critical importance of simultaneously testing both factor VIII and von Willebrand factor (vWF) antigen levels before labelling a patient as having hemophilia. In cases of bleeding disorders, a comprehensive approach is essential, as isolated factor VIII testing may not reveal the true underlying cause, such as VWD, which can present with similar bleeding symptoms. Without evaluating both parameters, patients may be misdiagnosed, leading to inappropriate

treatment and delayed diagnosis of the actual condition, underscoring the need for thorough diagnostic protocols in managing bleeding disorders.

Identifying these rare disorders is of utmost importance for preventing complications, managing symptoms effectively, and improving patient quality of life. Early diagnosis enables appropriate interventions such as factor replacement therapies, surgical planning, and genetic counselling, ensuring better healthcare outcomes for affected individuals. These tests play a crucial role in identifying bleeding disorders that may otherwise go unnoticed until a patient experiences significant bleeding or requires surgery. For example, the prevalence of von Willebrand Disease (VWD) is high, yet it is often diagnosed late due to a lack of awareness and proper testing. Early identification of VWD and other bleeding disorders ensures timely treatment and reduces the risk of severe complications, ultimately improving patient outcomes.

The Hemostasis Division at IQRAA Clinical Laboratory Services has grown into a centre of excellence in just a few years. Its specialized services, skilled team, and advanced technology have established it as a trusted destination for patients with bleeding and clotting disorders across Kerala. Under the visionary guidance of Dr. Raghuveer S Prahu, an esteemed Hematologist, the department has achieved remarkable milestones by foster-

ing a culture of precision, innovation, and excellence in diagnostics. His expertise and leadership have been pivotal in ensuring that the division consistently delivers cutting-edge care and maintains the highest standards of accuracy. Together, this exceptional collaboration continues to enable the department to play a significant role in improving healthcare outcomes by delivering timely, accurate, and reliable diagnoses for patients

Establishment and Growth

The Hemostasis Division of IQRAA Clinical Laboratory Services started its operations in January 2020, initially offering basic coagulation tests.

Over time, the department witnessed steady

growth due to the rising demand for advanced diagnostics and the hospital's commitment to providing comprehensive healthcare.

Investments in state-of-the-art technology and the recruitment of

skilled professionals have made it possible to expand the range of services. Today, the department is recognized as one of the best coagulation centres in Kerala, offering a wide array of specialized tests.

Diagnosed Disorders with Prevalence and Significance

- 1.Factor VIII Deficiency (Hemophilia A). Cases Identified: 24 Prevalence: Affects 1 in 5,000 male births globally.
- 2.Factor IX Deficiency (Hemophilia B). Cases Identified: 4 Prevalence: Affects 1 in 30,000 male births globally
- 3.Factor V Deficiency. Cases Identified: 1 Prevalence: Extremely rare, occurring in about 1 in 1 million people
- 4.Combined Factor V and VIII Deficiency. Cases Identified: 3 Prevalence: Rare, seen in about 1 in 1 million people
- 5.Factor VII Deficiency Cases Identified: 13 Prevalence: Occurs in approximately 1 in 500,000 people
- 6.Factor XI Deficiency Cases Identified: 7 Prevalence: Rare, with an estimated frequency of 1 in 1 million
- 7.Factor XII Deficiency Cases Identified: 15 Prevalence: Found in about 1 in 500,000 people, with a higher prevalence in certain populations, including Ashkenazi Jews
- 8.von Willebrand Disease (VWD) Cases Identified: 28 Prevalence: Affects about 1 in 100 people globally, but only 1 in 10,000 experience symptoms severe enough for diagnosis.
- 9.Inherited Vitamin K-Dependent Clotting Factor Deficiencies Cases Identified: 3 Prevalence: Extremely rare, with few cases reported globally
- 10.Acquired Hemophilia Cases Identified: 6 Prevalence: 1-4 in one million

Other Special Investigations

- Inhibitor testing: Inhibitor testing (inhibitor screen & inhibitor assay) plays a crucial role in the management of both hemophilia and acquired hemophilia. It helps to detect the development of inhibitors—antibodies that can neutralize the effects of clotting factor therapy, making treatment less effective. Early detection of inhibitors is vital for adjusting treatment plans and ensuring optimal care. At our facility, we have conducted numerous inhibitor screenings and also organized camps at affordable prices for hemophilia patients, ensuring accessibility for those who might otherwise face financial barriers. This proactive approach helps identify patients at risk of developing inhibitors, allowing for timely interventions and better management of their condition, ultimately improving their quality of life. By offering these tests at a lower cost, we aim to reduce the financial burden on families while providing essential services that enhance patient outcomes.
- Thromboelastography (TEG): TEG is a global hemostasis assay which is extensively used in the perioperative management of bleeding in major surgeries, polytrauma, critical care, etc. It helps to assess the entire hemostatic property of an individual starting from clot formation and its acceleration, clot strengthening and lysis. Each month, in IQRAA, approximately 15 TEG tests are performed, aiding in the management of bleeding diathesis during surgeries or bleeding episodes.
- Tests for Antiphospholipid Antibodies – APLA Workup: Around 60 APLA workups are conducted in a month, which are crucial for diagnosing antiphospholipid syndrome, a condition linked to recurrent miscarriages, strokes, and other thrombotic events. Another 40 thrombophilia workups are carried out monthly to identify individuals at risk for developing blood clots, allowing for preventive measures and improved management of thrombotic conditions.
- Complement Factor H (CFH) & its Inhibitors: Complement factor H (CFH) plays a critical role in regulating the complement system, which is part of the immune response. It prevents excessive activation of the complement pathway, protecting cells from damage. However, the presence of anti-complement factor H (anti-CFH) antibodies can lead to uncontrolled complement activity, contributing to diseases such as atypical hemolytic uremic syndrome (aHUS) and other autoimmune disorders. Recognizing the importance of testing for CFH and its inhibitors, we introduced these tests in October 2023. Since then, approximately 30 complement factor H tests and 61 anti-complement factor H tests have been performed, with 17 cases of positive anti-complement factor H results identified. These findings emphasize the value of early detection and diagnosis, enabling timely interventions and better management of affected patients. By offering these specialized tests, we aim to provide critical diagnostic support and improve patient outcomes.
- The Hemostasis Division at IQRAA Clinical Laboratory Services has grown into a centre of excellence in just a few years. Its specialized services, skilled team, and advanced technology have established it as a trusted destination for patients with bleeding and clotting disorders across Kerala. Under the visionary guidance of Dr. Raghuveer S Prahu, an esteemed Hematologist, the department has achieved remarkable milestones by fostering a culture of precision, innovation, and excellence in diagnostics. His expertise and leadership have been pivotal in ensuring that the division consistently delivers cutting-edge care and maintains the highest standards of accuracy. The collective leadership, vision, and tireless efforts have been instrumental in driving the growth and success of the department. Together, this exceptional collaboration continues to enable the department to play a significant role in improving healthcare outcomes by delivering timely, accurate, and reliable diagnoses for patients.



Iqraa Hospital has received a new ambulance, generously donated by the family of the late Beebi Bishara, a beloved former colleague, in her cherished memory. The vehicle was officially flagged off by Executive Director Dr. Anver P.C. in the presence of Beebi Bishara's family members and Iqraa staff.

We are Now Authorized to Perform Liver Transplants!

Iqraa Hospital has officially been granted approval to perform liver transplantation. This authorization, valid for five years from 2nd July 2025, marks a major step forward in our journey of expanding advanced medical care. With this achievement, Iqraa Hospital is now fully certified and equipped to provide world-class liver



transplant services, bringing new hope to patients with serious liver conditions. This milestone is the result of the dedication, expertise, and teamwork of every department and it reflects our shared commitment to making cutting-edge, accessible healthcare a reality for all.

Together, we continue to raise the bar for excellence in patient care.



Breast Feeding Awareness Session



Arm Wrestling Winners



IQRAA launches 'SALUTE' initiative

Iqraa Hospital has introduced SALUTE – a special program dedicated to honouring and supporting retired doctors. This initiative is a heartfelt tribute to the lifelong service of doctors who have devoted themselves to healing others. While they have saved countless lives, many retired doctors often go unrecognised and lack the care they deserve.

Through SALUTE, Iqraa Hospital will provide home care, medical consultations, diagnostic services, treatment support, and priority access to healthcare facilities, specifically designed for retired doctors in and around Calicut. The program was officially inaugurated by Dr. Suresh Kumar, Palliative Care Department at the World Health Organization and a pioneer of palliative care

in Kerala, during the World Doctors' Day celebrations. Additionally, awards were presented to children of doctors who excelled in the 10th and Plus Two examinations. JDT Islam Secretary Dr. V. Idrees, Iqraa Hospital Chief of Medical Staff Dr. Shamsudeen, M, and Group General Manager Muhammad Jezeel N. also addressed the gathering.

Dr. Easaw's Books Gifted to Iqraa Library

In a heartfelt gesture to honour the legacy of the late Dr. P.C. Easaw, a distinguished physician and former Head of the Department of General Medicine at Kozhikode Medical College, his family has donated his treasured collection of medical books to the Iqraa Hospital Library. The books, which reflect Dr. Easaw's lifelong dedication to medicine, will serve as a valuable resource



for doctors, medical students, and healthcare professionals, enriching the hospital's academic and research environment. The donation was formally handed over to Iqraa Hospital Executive Director, Dr. P.C. Anver, during the launch event of the hospital's SALUTE program, held in connection with the World Doctor's Day celebrations.

What They Achieve, We All Celebrate..

Dr. Faris Hussain K.N. Chief of the Critical Care Department, has received the Best Quality Improvement Project award at a workshop hosted by KIMS Hospitals, Secunderabad, titled 'Digital Innovations & Sustainability in Shaping Healthcare Future'. The award-winning presentation highlighted



ed the work of the Post Intensive Care Syndrome (PICS) team, which focuses on the one-year follow-up of ICU-discharged patients through the smart utilisation of existing technology.



At Rapid MMC 1.0 – Emergency Medicine Conference held at Malabar Medical College, Calicut, our DNB Emergency Medicine residents secured following prizes.



Quiz Competition 1st Prize – Dr. Jabir Majeed & Dr. Muhammed Shahal (3rd Year DNB)
2nd Prize – Dr. Aghin & Dr. Muhammed Shafeek (1st Year DNB)
Paper Presentation - 2nd Prize – Dr. Muhammed Shahal (3rd Year DNB)



Annual CME of Cochin Haematology Group held at Raviz Kadav, Calicut.

Dr. Shyam Krishna, DNB resident in General Medicine, has secured 1st prize Oral Paper Presentation.

Dr. Krishnapriya, Dr. Shifa and Dr. Hasna, DNB residents, have won 3rd prize in the Haematology update Quiz.



World Suicide Prevention Day Observed

The World Suicide Prevention Day observance was organized by IQRAA-Thanal Centre for Psychiatric Care. The closing ceremony of the Suicide Prevention Day observance events was inaugurated at Kozhikode Beach Freedom Square by IQRAA Hospital Executive Director Dr. Anver P.C.

He stated that the increasing trend of suicide among the younger generation is alarming and that initiatives capable of addressing this issue must be prioritized. As part of the observance, awareness sessions and

leaflet distribution were conducted by 400 volunteers at homes and institutions within a 10-kilometer radius of Iqraa Hospital, Malaparamba. Awareness classes were also held in colleges and schools.

The closing events at the Beach Freedom Square included an awareness mime, a skit, a street play by differently-abled children, and an awareness class by a psychiatrist. In connection with the event, awareness classes were held at Providence College, LISSAH College, and J.D.T. College by Dr. Vaishnavi Sudheer, Dr.

Lukhman, and clinical psychologists Avani and Anamika. An online session was held in the evening to address public queries, led by Dr. Jayakrishnan Menon.

IQRAA Academy Principal Remzy E.K. and IQRAA-Thanal Centre for Psychiatric Care Manager Muhammad Jamsheer were among those addressed in the event. The events were led by volunteers from J.D.T.S.I.P.C, IQRAA Academy students, Universal Academy A.M.I students, IQRAA Hospital staff, and palliative care volunteers.



IQRAA Hospital Executive Director Dr. P.C. Anver inaugurates the closing ceremony of the World Suicide Prevention Day observance events organized under the leadership of IQRAA-Thanal Center for Psychiatry at Kozhikode Beach Freedom Square.