Medlab Middle East
By Informa Markets

Daily Dose

Day 3, Wednesday 7 February 2024

The official daily newspaper of the Medlab Middle East Exhibition

Sheikh Mansoor bin Mohammed bin Rashid Al Maktoum graces the show

The visit of the Vice Chairman of Dubai Health is a testament to the show's legacy as the region's largest exhibition and congress dedicated to laboratory medicine.

His Highness Sheikh Mansoor bin Mohammed bin Rashid Al Maktoum, Vice Chairman of Dubai Health, officially opened Medlab Middle East. Taking place until February 8, Medlab Middle East is the region's largest laboratory exhibition and plays a vital role in advancing the field of laboratory medicine in the region and worldwide.

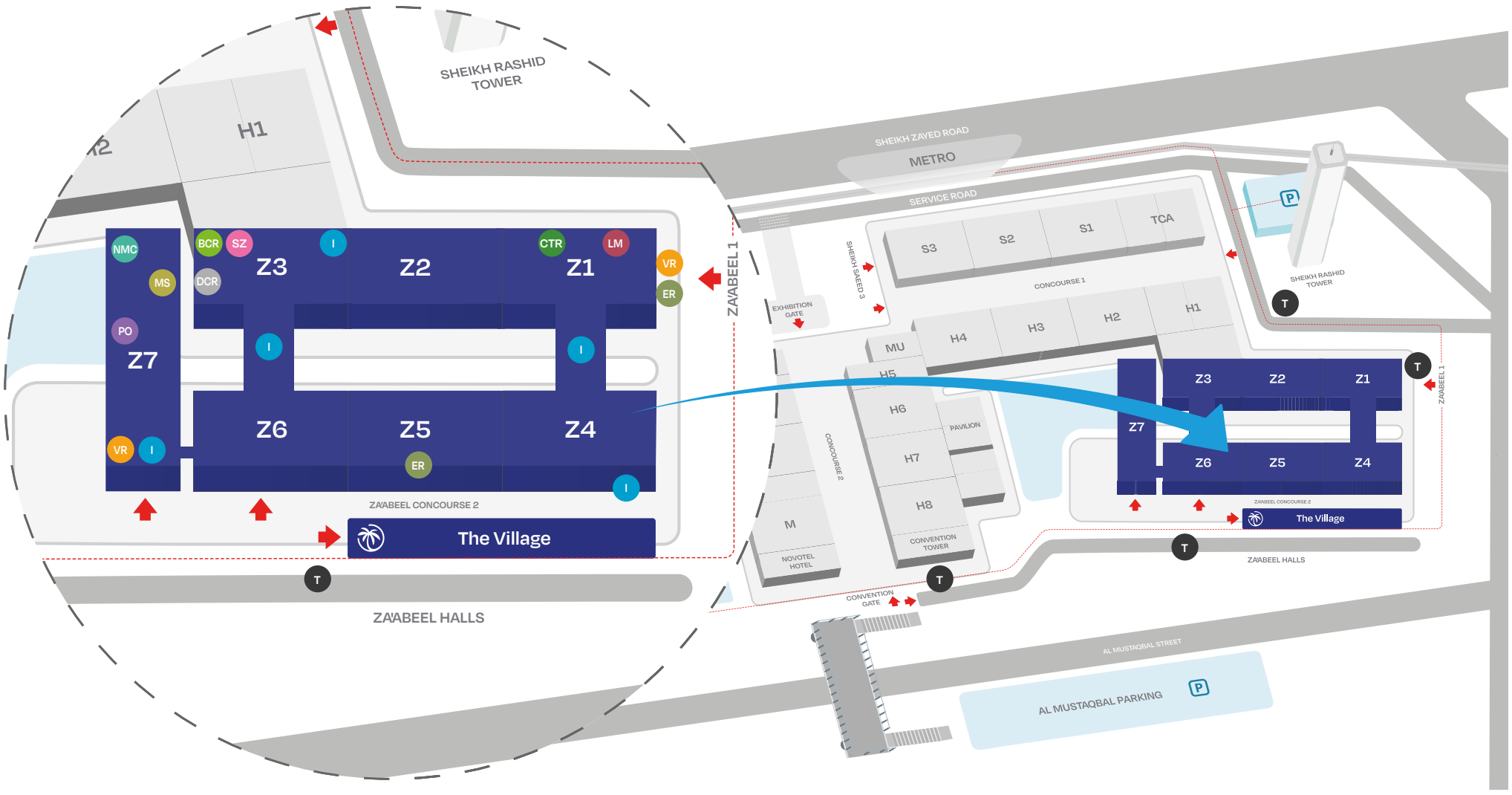
The 2024 edition features over 900 exhibiting companies from more than 40 countries, showcasing the latest laboratory innovations across eight product categories, which include disposables and consumer goods, emergency medicine, imaging and diagnostics, healthcare and general services, IT, laboratory, medical equipment and devices and pharma and Nutrition.

Commenting on the opening of the 23rd edition of Medlab Middle East, Tom Coleman, Senior Exhibition Director, Medlab Series, Informa Markets said: "Last year was a record-breaking year for Medlab Middle East, where Dh1.9 billion of deals were secured. Following on from this success, we are expecting a 20 per cent increase in visitor numbers this year, with an estimated 30,000 attendees, and we have some exciting new additions to the event which will elevate opportunities for knowledge-sharing and business-building even further."

On the opening morning of Medlab Middle East, growth strategy consulting firm Frost & Sullivan hosted a Think Tank on the 'Strategic Investments and Growth Opportunities: Reshaping the Future of Laboratories and Diagnostics Industry in the Middle East'. Attended by representatives from Abbott, Randox, Thermo Fisher Scientific and Cleveland Clinic, the distinguished panel of healthcare leaders addressed industry topics including the key drivers and challenges for the laboratories and diagnostics sectors in the Middle East, and which technologies are expected to drive growth in the industry in the years ahead.

Elsewhere, Dr. Bernie Croal, President-Elect of The Royal College of Pathologists in the UK discussed 'strategies to ensure that lab testing is focused and safe' at the Laboratory Management Conference, while Dr. Lubna AlZadjali, Consultant Haematopathologist from the Sultan Qaboos Comprehensive Cancer Centre in Muscat, spoke at the Haematology Conference on Haematology laboratory information systems.

Medlab Middle East 2024 Floor Plan



Stand key prefix

- Entrance/Exit
- The Village
- Parking
- Taxi drop-off
- BCR Bangkok conference room
- NMC Nextgen Medicine conference room
- DCR Dubai conference room
- CTR Cape Town room
- SZ Sustainability zone
- PO Press office
- MS Medlab Series stand
- LM Lagos room
- I Infobooth
- ER Exhibitor registration
- VR Visitor registration

Conference agenda

Future of Lab Track

Wednesday, 7 February, Bangkok Room, Za'abeel Hall 3

10:15 Opening remarks

Session 1: Embarking on a new era of lab medicine: exploring the frontiers of innovation

10:30 Redefining clinical laboratories in the age of transformation

Session 2: Technological innovations shaping the future of lab medicine

11:00 Precision medicine unleashed: decoding the genetic secrets for personalized care

11:30 The rise of automation and artificial intelligence: revolutionizing lab processes

12:00 Addressing worldwide shortage of pathologists and medical lab scientists and the skillsets required in the era of Automation and AI

12:30 Q&A Session Speakers

12:45 Lunch break and visit the exhibition

Session 3: Advancements in testing methodologies

14:00 Point-of-care testing (POCT) revolution: empowering patients and transforming diagnostics

14:30 Liquid biopsies and the evolution of cancer diagnostics

15:00 Q&A Session Speakers

15:15 Coffee break

Session 4: Data management and integration

16:00 Unleashing the power of big data analytics: illuminating insights for clinical laboratories

16:30 Large language models in laboratory – perils and promises

17:00 End of track

Sustainability in the Lab Track

Thursday, 8 February, Lagos Room, Za'abeel Hall 1

10:15 Opening remarks

Session 1: Environmental Sustainability

10:30 Success story of implementing green practices & outcome

10:50 Consolidation of laboratory services: Environmental and operational impacts

11:10 Green labs in a circular economy- From design to practice

11:30 Achieving a sustainable culture in laboratories - practice and certification

11:50 Coffee break

Session 2: Social Sustainability

12:20 Laboratory workforce sustainability and the value of credentialing

12:50 Leveraging equity, equality and inclusion in medical laboratories

13:10 Environment, social and governance (ESG) as a commercial opportunity: Sustainability opportunity in labs

13:30 Lunch break and visit the exhibition

14:45 Integrating sustainability in medical education curriculum

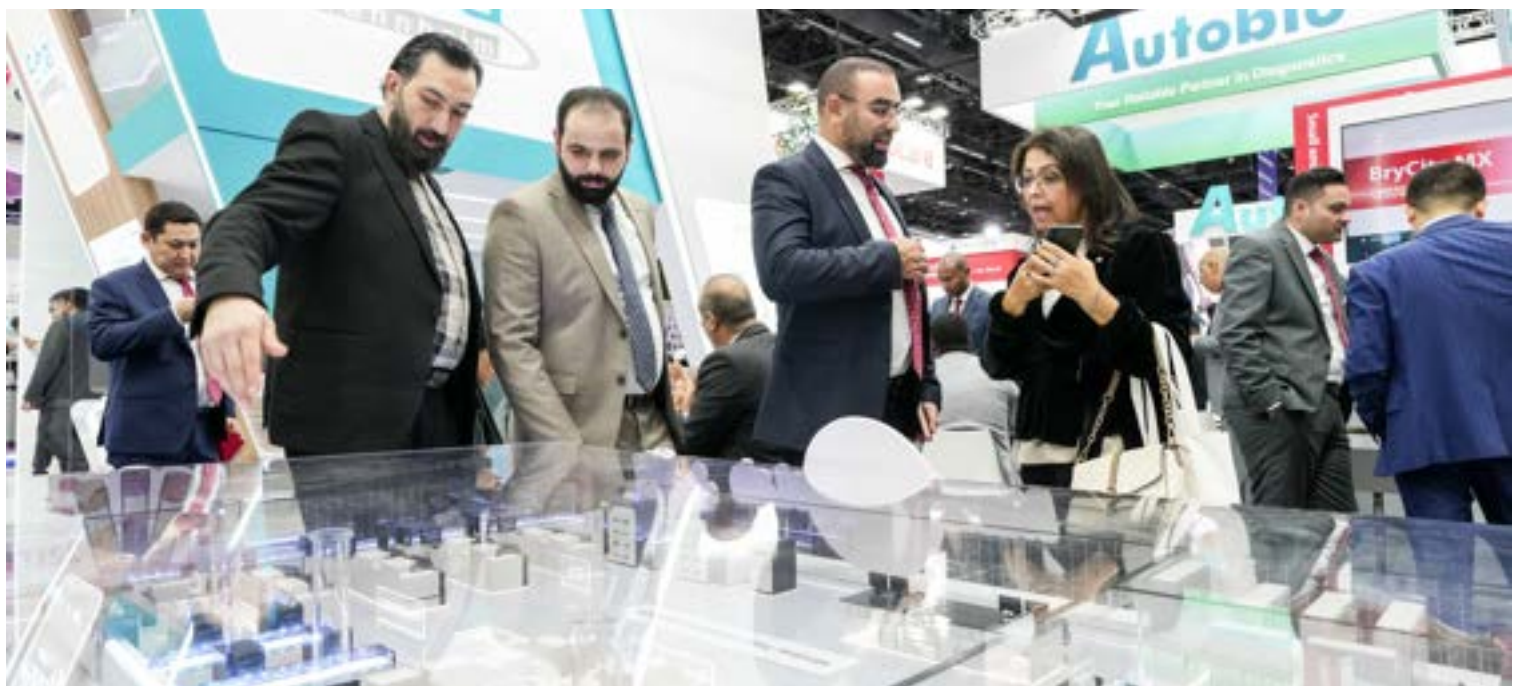
Session 3: Financial Sustainability

15:05 Panel Discussion: Sustainable laboratories - A triad of environmental, social and financial response

15:40 Q&A Session Panelists

15:50 Challenges of maintaining financial sustainability in clinical labs & Solutions

16:10 End of track



Medlab Middle East at a glance

Medlab Middle East 2024 Congress

Wednesday, February 7

Conference	Room	Start	Finish
Clinical Chemistry	Dubai Room, Za'abeel Hall 3	10:15	16:50
Future of Lab	Bangkok Room, Za'abeel Hall 3	10:15	17:00
Clinical Genomic Interpretation	Lagos Room, Za'abeel Hall 1	10:17	17:35

Thursday, February 8

Conference	Room	Start	Finish
Immunology	Dubai Room, Za'abeel Hall 3	10:15	17:00
Blood Transfusion	Bangkok Room, Za'abeel Hall 3	10:15	16:30
Sustainability in the Lab	Lagos Room, Za'abeel Hall 1	10:15	16:10

Panel

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Industry workshops

Gain first-hand insights into the latest innovations in the medical laboratory industry through this feature, where industry leaders share their knowledge and expertise.

Wednesday, 7 February

1) Shortcut to Absolute Health (breaking into the impossible)
Company: LaboShop
Location: NextGen Medicine Conference room, Z7.N10, 11:00 - 12:00
2) Updates in Newborn Screening
Company: Biosytech Medical Laboratory
Location: NextGen Medicine Conference room, Z7.N10, 12:30 - 13:30
3) A Revolution in Single Cell Genomics featuring ResolveDNA and ResolveOME
Company: BioSkryb Genomics
Location: NextGen Medicine Conference room, Z7.N10, 14:00 - 15:00
4) Revealing more biology using nanopore sequencing to transform population genomics
Company: Oxford Nanopore Technologies Ltd
Location: NextGen Medicine Conference room, Z7.N10, 15:30 - 16:30

Workshops

From the latest diagnostic tools to research techniques, the workshops offer a unique opportunity to enhance skills and stay at the forefront of medical innovation.

Wednesday, February 7

Genetic Testing between Illness and Wellness
Hosted by Al Borg Diagnostics | **Location:** Cape Town room, Z1.C02, 10:30 - 13:00

The session on genetic testing in rare diseases, translational microbiome, and wellness promises to offer an insightful exploration of emerging trends in personalised medicine. Anticipated discussions will delve into the pivotal role that genetic testing is expected to play in diagnosing and understanding rare diseases, emphasising the potential for tailored treatments based on individual genetic profiles. Experts are poised to underscore the transformative impact of genomic insights on patient outcomes, stressing the importance of early detection and intervention.

Swimming towards precision: Exploring zebrafish models in personalised medicine
Hosted by Sidra Medicine, Tecniplast, Virtus, Noldus Information Technology
Location: Cape Town room, Z1.C02, 14:00 - 17:00

14:00 - 15:30 | Sidra Medicine
Sidra Medicine Zebrafish Functional Genomics Facility employs a platform of assays that merges the gap between clinical presentations and genomics findings, presenting a roadmap toward precision medicine. Earlier diagnosis of human genetic diseases means earlier intervention and potentially saving a life. This session will describe the state-of-the-art zebrafish model platform for interpreting population genomics and rare genetic diseases. Presenters will explain related applications to human disease modelling and provide in-depth knowledge of technologies in validations, interpretation, and more.

15:30 - 16:00 | Tecniplast
With over 700 systems in more than 50 different Countries, Tecniplast is a leading company in manufacturing Recirculating Aquaculture Systems for biomedical research. During the workshop, organised together with Sidra Medicine, Techniplast will review together some real applications of technologies related to zebrafish housing and husbandry.

16:00 - 16:30 | Noldus Information Technology
The seminar will explain the journey of video tracking through the lens of EthoVision XT: video tracking software acknowledged as one of the best tools for behaviour neuroscience in preclinical research worldwide. The basic concept of the technology will be covered, following up with examples of advanced features implementing AI for a better understanding of the behaviour.

16:30 - 17:00 | Panel discussion
This panel discussion aims to explore the transformative potential of zebrafish models in bridging the gap between clinical presentations and genomics findings, leading the way toward precision medicine. By focusing on zebrafish as a model organism, the discussion will unfold the unique biological features that position them as an ideal tool for studying human diseases. Through the lens of established zebrafish disease models, imaging techniques, and phenotypic analysis, attendees will gain insights into the roadmap for earlier diagnosis, intervention, and personalised treatment strategies.

The future is now: long-read whole-genome sequencing to transform diagnostics in human genetics

For diagnosing rare diseases, the long-read approach will have several major advantages.

By Prof. Hanno J. Bolz

In May 2023, long-read whole-genome sequencing (WGS), based on Pacific Bioscience's Revio platform, was established at the Human Genetics Department of Bioscientia in Ingelheim, Germany. The Revio produces highly accurate so-called HiFi reads of 15,000-20,000 bases (15-20 kb). For comparison, the currently widely used short-read next-generation sequencing (NGS) tests, applied as gene-panel or whole-exome (WES) analysis, are based on reads of only 250 basepairs.

The addition of two – and soon a third – Revio platforms complements the portfolio at Bioscientia Human Genetics, which covers all areas and current methodologies in human genetics. These include:

- Cytogenetics for prenatal indications and congenital conditions.
- Tumour cytogenetics, e.g. for therapeutic guidance in haematological malignancies.
- Array of comparative genomic hybridization (aCGH) for submicroscopic detection of structural aberrations.
- Optical Genome Mapping (OGM), a recently introduced method for diagnosing even balanced structural aberrations at very high resolution.
- NGS on several high-capacity short-read sequencing platforms for WES and WGS.
- Genetic counselling, conducted by a highly experienced team of specialized MDs.

Finally unlocked: The dark matter of the human genome

For diagnosing rare diseases, the long-read approach will have several major advantages because it may uncover previously "hidden" mutations:

- Variants residing outside the protein-coding gene regions (approximately 15 per cent): These dead angles are not covered by current NGS tests and have thus far escaped detection. Many of these disease-causing aberrations will be deep-intronic and could soon be particularly amenable to splice-correcting therapy approaches.
- Complex regions overshadowed by highly homologous and pseudogene regions elsewhere in the genome become readable. This eliminates a major diagnostic gap: Some of these genome areas are mutational hotspots for conditions like blindness (the ORF15 exon of the retinal degeneration gene RPGR) and deafness (the STRC gene).
- Large structural variants have often been missed by sequencing because their range exceeds the size of "traditional" short reads. Long reads do uncover them, including balanced aberrations.
- Large repeat regions, whose expansions may cause neurological disorders such as Huntington's disease and ataxia, can precisely be retrieved from the long reads.
- Methylation defects which may cause imprinting disorders like Angelman syndrome can be visualised on HiFi reads.

After the advent of NGS and its first introduction into routine diagnostics about a decade ago, this will be the next real quantum leap in human genetics

After in-depth validation with positive control samples for the above aberrations, the Bioscientia Human Genetics team has now shifted their tests for inherited sensory disorders (eye diseases, deafness – both representing conditions with high genetic heterogeneity) and cancer syndromes from short-read exome sequencing onto their two Revio platforms. Additional diagnostically challenging conditions like developmental delay clearly represent prime candidates for this novel approach. As in 2011, when Bioscientia was among the first to apply NGS diagnostically, the company is again pioneering the diagnostic introduction of a novel ground-breaking methodology. This next quantum leap in human genetics enables scientists and medical geneticists at Bioscientia to unlock the remaining dead corners of the genome in one go – by a single test.

HiFi long-read sequencing shines light on the dark regions of the genome.

Long reads of "half-solved" cases with recessive disorders, that is patients with only one mutant copy of a respective gene, held surprises: In some, the "missing hit" was indeed in protein-coding regions – exons that had apparently been well covered, but obviously missed, by previous short-read sequencing. The lesson learned is: Long-read genomes apparently provide better exomes – and in addition shed light on the dark corners.

Long-read genomes apparently provide better exomes – and in addition shed light on the dark corners

Bioscientia has long-standing cooperation with hospitals and healthcare providers in the Middle East. By offering long-read sequencing in this region, many patients with difficult-to-detect mutations will finally receive a genetic diagnosis, with important implications for their prognosis, recurrence risks and personalised medical management and therapy. First gene therapies have become available for retinal degeneration, and tumour patients are increasingly being treated based on their causative mutations. Both entities represent fields of particular scientific excellence at Bioscientia, reflected by two recent high-level publications on novel disease genes (Abdel-Salam et al., 2023; Nuzhat et al., 2023). The wealth of data from HiFi long-reads allow for deep dives where necessary – this may lead to the identification of novel genes not previously associated with a genetic condition.

The wealth of data form HiFi long-reads allow for deep dives where necessary – and this may lead to the identification of novel genes not previously associated with a genetic condition

Close cooperation between clinicians who initiate genetic analyses and staff at Bioscientia is considered very important. This ensures the best results because information on symptoms and/or family history may make a major difference when it comes to interpreting complex genetic data. Bioscientia´s geneticists look forward to their Middle East cooperation partners joining them in entering new genetic territories.

References available on request.

Prof. Hanno J. Bolz is Head of Bioscientia Human Genetics, Ingelheim, Germany

Prof. Hanno J. Bolz will be speaking on 'A new era in NGS of rare diseases: Long-read whole-genome sequencing transforms human genetics research and diagnostics' at the Clinical Genomics Interpretation Track today at 2:30pm.

Precision medicine for kidney disease

Traditional diagnosis and monitoring of renal disease are being challenged by more sophisticated "multi-omics" approaches.

By Dr. Gehad ElGhazali, Dr. Mohammed Yousuf Karim, and Dr. Siddiq Anwar

Nephrology as a speciality was born when physician Richard Bright described chronic kidney disease symptoms and anatomical changes in the early 1800s, but we could only start following kidney patients in a more systematic way when creatinine by bioassays was easily available. When nephrologist Stewart Cameron described how reducing proteinuria by blood pressure control helped reduce the rate of decline of kidney function in the late 1970s it remained the therapeutic benchmark for many years. The tools used for kidney disease management mostly focused on reducing proteinuria hence the focus on the use of RAAS blockade to manage progressive proteinuria kidney disease.

Concurrently, the nephropathological descriptions of kidney disease were based on light microscopy features, we had diseases like minimal change disease, membranous nephropathy, focal segmental glomerulosclerosis, etc. We knew from our clinical experience that these diseases had heterogenic outcomes with some responding easily to therapy and some having delayed or no response.

A classic example was membranous nephropathy, which had a famous rule of thirds — 1/3 going to spontaneous remission, 1/3 progress, and 1/3 remained static — and for many years we did not know the reason for this. The treatment for membranous nephropathy for many years was broad-spectrum cytotoxic agents with high-dose steroids and this was only considered after three to six months of waiting period as we were hoping for spontaneous remission. There were some clinical and anatomical indicators to indicate those who go into remission spontaneously, but this was largely not reliable or reproducible.

Nephrology as a speciality had a breakthrough in 2009 with the discovery of antibodies that caused membranous nephropathy and since then there have been many such antibodies described. This led to treatment protocols where the use of antibody assays has been used to decide renal biopsy and treatments. These antibodies are now used for surveillance including post-renal transplantation.

In addition, the need for comprehensive screening for potential kidney donors has required us to undertake screening to look for any predisposition for kidney disease like APOL1 genotyping.

This led to major interest in developing biomarkers that help diagnose detect and predict kidney disease. A great example is the development of placental growth factor assays that help predict preeclampsia disease, which affects young women and predisposes them to poor maternal and foetal outcomes.

In addition, in this region where there is an explosive rise in kidney disease, the establishment of national genome projects in UAE, Qatar and Saudi Arabia, plus their unified national health records, will help us longitudinally follow patients and understand the reasons and predisposition for this rising kidney disease. In addition will help us deep dive into dose clusters of premature kidney disease and certain phenotypical features that occur in families.

Detection of circulating autoantibodies essential for diagnosis and follow-up

Dr. Gehad ElGhazali, MD, PhD, Professor of Clinical Immunology and Services, and Lead of the Diagnostic and Transplant Immunology laboratory at Purelab, and his colleagues from the lab worked to develop the UAE National calculated PRA calculator. This calculator opens opportunities to build a national allocation policy for deceased donors and develop a national waiting list.

In addition, his team supports nephrologists and rheumatologists not just from the Pure Health network but across the UAE healthcare system to manage patients with complex immune-mediated and genetic kidney disease.

Several autoantibodies have been identified as renal disease-associated biomarkers with some of them being possibly implicated in pathogenesis.

A great example since the discovery of a major target antigen in membranous nephropathy, there has been a radical change in how we manage this condition. Two autoantibodies that are directed against kidney-specific autoantigens in membranous nephropathy (M-type phospholipase A2 receptor, PLA2R and thrombospondin type-1 domain-containing 7 A, THSD7A) were identified. Anti-PLA2R autoantibodies are highly specific to primary membranous glomerulonephritis and are detected in about 70 per cent of patients, while anti-THSD7A were detected in a small percentage of primary membranous glomerulonephritis.

The detection of circulating autoantibodies is of importance in diagnosis and follow-up. Since autoimmune-mediated renal diseases can lead to end-stage renal disease, early diagnosis and management will improve long-term outcomes. Dr. Gehad and his team continue to support clinicians and academics in the UAE to help understand the reasons for this rise in kidney disease in the region.

Non-invasive omics approaches to reduce the need for renal biopsy

Autoantibody and immunoglobulin assays are valuable in the prediction, diagnosis, and monitoring of a range of immune-mediated kidney diseases. At Sidra Medicine, Dr. Mohammed Yousuf Karim, Chief of the Division of Hematopathology, and a Clinical Professor in Immunopathology at the College of Medicine, Qatar University, established the diagnostic Immunology laboratory, including a full range of enzyme immunoassay testing for connective tissue disease and vasculitis — important causes of glomerulonephritis leading to CKD. Another important cause of CKD in young people is type 1 diabetes (T1D). Immune testing includes GAD-65, insulin, islet antigen 2, and zinc transporter 8 antibodies. One or more of these 4-antibody panels are detectable in 96 per cent of T1D patients and may occur before clinical disease onset. These autoantibodies can also be present in relatives of T1D patients. In the Research Branch at Sidra Medicine, Dr. Ammira Akil is developing these autoantibody assays, with the plan to translate these into the diagnostic Immunology laboratory. The utility of autoantibodies extends to the selection of candidates for immunotherapy. Teplizumab, a monoclonal antibody binding to the CD3 ε chain is FDA-approved for T1D patients aged ≥8 years with stage 2 disease, able to delay onset of clinically diagnosed stage 3 T1D by a median of two years.

Polygenic risk scores involving HLA-typing for the prediction of T1D are now well established in large-scale European studies and are likely to soon enter the realms of clinical care. However, further research including non-European ancestries is necessary, and Dr. Akil is leading an international project at Sidra Medicine.

Traditional diagnosis and monitoring of renal disease are being challenged by more sophisticated "multi-omics" approaches, which are available in the research branch at Sidra Medicine. These technologies will likely enable more accurate diagnosis and improved stratification of prognosis and therapeutic response. Such methodologies include multiplex cytokine measurement, transcriptomics, multi-parameter flow cytometry, metabolomics, and proteomics. Such approaches can be applied on renal biopsy specimens, or non-invasively on urine as a window into the kidney. The latter is particularly applicable to disease monitoring, for example, where the use of urine protein-creatinine ratio is a relatively blunt tool that cannot reliably distinguish between ongoing inflammation and chronic damage. Dr. Karim foresees such non-invasive omics approaches may over time even start to obviate or reduce the need for renal biopsy.

Fostering collaborations to address unmet needs

Dr. Siddiq Anwar, Consultant Nephrologist and Associate Professor of Medicine at Sheikh Shakhbout Medical City (SSMC) and Khalifa University, concludes: "As we are beginning to understand the role of complex genetic variants to the predisposition of kidney disease and the role of antibodies in developing immune-mediated kidney diseases, then we can start tailoring medical treatment to specific disease processes and thereby optimising patient outcomes. In addition, we can define subgroups of patients who may and will not benefit from specific therapeutic strategies.

"This conference in Medlab Middle East is coming at an opportune time when regional experts are meeting with the presence of industry and academia to foster collaborations to address the unmet needs of the patient community here.

We look forward to meeting on February 8 where our distinguished line of speakers will talk about the latest advances in immunology and immunology-mediated diseases."

References available on request.

Dr. Gehad ElGhazali, MD, PhD

Dr. Mohammed Yousuf Karim

Dr. Siddiq Anwar

Sustainable laboratories: a triad of environmental, social and financial response

The irony of providing healthcare services is that the more we provide, the more carbon emissions we produce, which equates to more harm being unintentionally caused.

By Carolyn Millward

For the Paris Agreement climate goals to be attained by the year 2050, a holistic approach to sustainability is imperative. This notion also applies to the United Nation's Sustainable Development Goals (SDGs), which act as a clear indication that sustainable practices and initiatives need to consider a nuanced perspective that encompasses environmental, social and financial considerations.

From an ethical standpoint, healthcare professionals pledge to do no harm, and the irony of providing healthcare services is that the more we provide, the more carbon emissions we produce, which equates to more harm being unintentionally caused. What amplifies this irony is how healthcare providers grapple with the mounting impact of climate change caused by an increased prevalence of diseases, a surge in casualties from climate-related natural disasters and an increased burden on healthcare systems due to global migration driven by climate change, poverty and conflict. The interplay of these factors reveals an undeniable reality: the climate crisis is a health crisis that demands our urgent attention.

Laboratories, an integral pillar of the healthcare ecosystem, are not exempt from this, and are also faced with the same dilemmas. Outlined by the 'Global Roadmap for Healthcare Decarbonisation' as part of the 'Healthcare Without Harm' navigational tool dedicated to achieving zero emission with climate resilience and health equity, there are three main pathways that entities and healthcare professionals should abide by. This includes:

- Decarbonisation of healthcare delivery
- Decarbonisation of supply chain
- Accelerating decarbonisation in the wider society and economy

Those pathways provide further evidence into how addressing sustainability requires a holistic team effort. Where healthcare heroes, revered as trusted and respected members of the community across diverse cultures, should never underestimate the power of their voices to influence the communities they're a part of, raise awareness and drive positive change.

This also extends to the realm of corporate governance where Chief Financial Officers (CFOs) are tasked with carefully assessing and mitigating risks to their companies. Ignoring the environmental, social, and financial impacts of climate change would be a critical oversight. To lead responsibly, CFOs must factor the risks of not taking action across these areas.

In recent years, global conversations with healthcare leaders have made certain misconceptions increasingly evident — the belief that for sustainability to move forward, entities need to incur additional costs and that sustainability is only about reducing emissions. These perceived roadblocks signify how social and financial dimensions are often overlooked.

So what can we, as healthcare and finance professionals, do to ensure that we are following the three pathways to decarbonise healthcare?

At Sheikh Shakhbout Medical City (SSMC), we initiated our journey with the social aspect by creating awareness and education opportunities related to sustainability. We firmly believe that it is of utmost importance to involve both our employees and patients in this journey as it is the people at the frontlines who will be able to identity the best opportunities for change and waste reduction. It is our patients who will need to be on board with why and how they can adapt if we want these initiatives to work. Involving patients and staff in the reasons and roadmap of change is an extremely important part of encouraging a culture of change and achieving enduring results.

Moreover, implementing education courses, open days, competitions, townhalls and educational materials at SSMC have yielded notable success. As a testament to the work done in this area, our efforts in employee engagement received recognition from the Geneva Sustainable Centre, highlighting the impact of involving our team in sustainability initiatives.

Collaboration with organisations, SMEs, other healthcare facilities and regulators to promote knowledge exchange and share best practices, is the next crucial step. Sustainability is not about competition but rather the sharing of ideas and initiatives to drive change and results as fast as possible. SSMC's collaboration with the Geneva Sustainability Centre, Department of Health and Emirates Nature – WWF have been instrumental in shaping our strategy and guiding our development.

Breaking down the task of decarbonising healthcare into quick wins and longer-term goals has proven effective for SSMC. Taking simple steps like reducing single-use plastics, especially water bottles, and optimising waste management have led to positive outcomes. Savings from these single use water bottles were used to purchase a one-off supply of reusable water bottles for employees, encouraging the adoption of a new practice. What's more is that the offset of the cost was extended to providing "green" single use, recyclable water bottles for visitors and patients.

Waste management in hospitals, including the laboratory, is a significant concern, and can be addressed on several fronts.. Whilst an increase in recycling measures may result in incurring additional costs initially, the results of improving recycling and reducing waste will exceed costs incurred in the long run.

Establishing comprehensive recycling initiatives, complete with well-placed recycling depots or bins, as well as fostering awareness through education and trainings on proper waste segregation and disposal, will undeniably increase adoption of these practices. This focus can be directed to laboratory settings through dedicated education and awareness programmes as well.

Recording the weight of all categories of waste is helpful in monitoring progress and implementing corrective measures. From a clinical perspective, waste management can be targeted at reducing medical and surgical consumables waste as well as reduction of overprescribing and overtreatment. This requires detailed consultation with clinical and supply chain professionals to ensure best practice and standardisation of care pathways as well as safe disposal of pharmaceuticals. This approach is especially relevant to laboratories as it contributes to the reduction of unnecessary lab testing.

SSMC has witnessed the financial benefits associated with sustainability measures related to utilities due to the reduction in water and electricity usage over time. Labs can do their part by making sure to turn off electronic devices overnight. This also extends to investing in motion sensors for lighting, LED lighting, turning off equipment when not in use and procuring energy efficient equipment.

As we expand the hospital and replace equipment, including lab equipment, criteria for low energy purchases will be integral to evaluations,

Carolyn Millward is the Chief Financial Officer at Sheikh Shakhbout Medical City. She is part of the Sustainability in the Lab panel discussion, "Sustainability Laboratories — a triad of environmental, social and financial response" taking place at 3.05pm on February 8.

Sustainability takes centre stage in medical laboratories

Exploring the economic implications of ESG initiatives and the path to sustainability in laboratories.

By Deepa Narwani

As the Middle East embraces a new era of sustainability, governments across the region are spearheading initiatives to drive environmental, social, and governance (ESG) practices. For instance, Saudi Arabia's Circular Carbon Economy National Program is driving net zero carbon emissions by identifying the funding mechanisms required for climate protection. While the UAE's Sustainable Finance Framework aims to deepen cooperation between the public and private sectors and seeks to create an improved enabling environment to mainstream sustainable finance practices, resulting in more green investments.

As part of the 'Sustainability in the Lab' track, Unmesh Lal, Research Director – Healthcare and Lifesciences Practice and Growth Coach, Frost & Sullivan, Berlin, Germany, will be discussing 'Environment, social and governance (ESG) as a commercial opportunity: Sustainability opportunity in labs'.

In an interview, he said: "My session will focus on sustainability and the investment opportunities it will bring for the medical laboratories in the region and the need to implement training programmes on sustainability in these laboratories. We will see a rise in renewable energy adoption, automation for sustainability, increased focus on recycling, and the integration of public health and access into core business strategies. When laboratories are able to achieve that, they will be able to develop harmonised ESG-based frameworks, which are at the forefront of the agenda in the Middle East."

Lal commented that there is a big push in the region regarding sustainability, and companies need to start acting on it now. In the long run, sustainability improves efficiency and reduces the overall carbon footprint.

When asked about the barriers laboratories face when it comes to sustainability, Lal highlighted that the lack of funding was the biggest challenge. "In addition to that, the lack of knowledge, awareness among the staff, unwillingness of the staff to participate due to lack of bandwidth, and the lack of trained and skilled professionals towards these goals are some of the other gaps," he added.

To drive sustainability, laboratories need to focus on two key aspects - waste management and striving towards zero net emissions. "Improving waste management services involves reducing the overall waste generated and reducing water and energy consumption. Laboratories should also consider conducting campaigns and sustainability programmes around sustainable transportation or packaging, use environment-friendly products, and partner with suppliers and vendors that also have similar metrics in place," he emphasised.

Furthermore, Lal stressed that it is essential to have sustainability metrics in place as they can be used to evaluate and track progress in areas such as the management of hazardous and non-hazardous waste, reduced energy consumption and monitoring excessive water usage, among other factors. Laboratories also need to have metrics in place to reduce global greenhouse gas and carbon emissions.

Another key enabler for sustainability in the lab is technology. Lal highlighted that over the next two to five years, pharmaceutical and biotech companies will adopt technologies such as real-time tracking, the Internet of Things (IoT), image analytics, and deep learning, among others.

Vendors play a critical role here because laboratories want equipment with improved proficiency and energy efficiency. So, they need to start thinking about building instruments that require less consumables and ensure that every part of the instrument has some form of recyclable sort of material. The focus should be on sustainable product design and the lifecycle of the instrument. From the research side of things, a lot of innovation is taking place in platforms, products, and software.

Lal concluded: "Any technology that is going to optimise and monitor sustainability will see increased implementation over the next couple of years. Many platforms are incorporating ESG in their growth strategy. We are seeing several laboratories working with external consultants and using some of these sustainability platform providers for ESG, audits, reporting, risk attachment, and are collaborating with vendors to achieve sustainability."

Unmesh Lal will discuss 'Environment, social and governance (ESG) as a commercial opportunity: Sustainability opportunity in labs' at the Sustainability in the Lab track on February 8 at 1:10pm.

Frost & Sullivan Think Tank Session

On the first day of the show and as part of the Medlab Partners Forum, Frost & Sullivan hosted a Think Tank session titled 'Strategic Investments and Growth Opportunities: Reshaping the Future of Laboratories and Diagnostics Industry in the Middle East'.

The session was moderated by Aroop Zutshi, Global President & Managing Partner, Frost & Sullivan, while the panellists included Ahmed Mahran, Head, Business Management Laboratory Solutions, Middle East & Africa, Siemens; Dr. Scott McKeown, Product Manager, Randox; Frost & Sullivan's Unmesh Lal; and Virasath A Khan, Director - Strategic Business Development, Thermo Fisher Scientific, Dubai.

The session focused on strategic investments, growth opportunities, and the future of laboratories and diagnostics in the Middle East. The region is witnessing a rise in the ageing population and chronic diseases, and the panellists put the spotlight on the need to transition towards a health and wellness system that is preventative, predictive, precise, and personalised. They stressed that precision health will play a key role in improving health outcomes, patient and clinician experience, health equity, and reducing overall costs in the coming years.

Energy conservation: a critical concern for laboratories

Sustainability in Laboratory conference will highlight strategies for creating and maintaining a cost-effective workspace.

Action on sustainability is crucial for helping to reduce the environmental impact of the healthcare sector, say experts set to speak at the conference.

Running a laboratory consumes a considerable amount of resources and energy, which can be a significant burden on the environment. To highlight the issue, Medlab Middle East will gather a panel of global experts at the 'Sustainability in the Laboratory' conference, a CME-accredited conference that takes place tomorrow.

Studies show that laboratories consume 10 times more power and four times more water than commercial office space. Furthermore, laboratories generate 5.5 million metric tonnes of plastic waste annually. As a result, many laboratories and pharmaceutical businesses are taking steps to future-proof their operations and minimise their impact on the environment.

Laboratories can adopt simple strategies to reduce their energy consumption

Dr. Nehmat El Banna, Clinical Pathology Specialist and CEO of Freiburg Medical, will be speaking at the Sustainability in the Laboratory conference and believes the topic to be a vital element of the healthcare system in general.

"Laboratories are a significant player in the healthcare industry and are known to be the highest users of energy in the sector. Climate change has a direct consequence on human health. There will be higher temperatures, more adverse weather events, and poorer air quality which leads to more illnesses, and infectious diseases will spread more easily. All of this will place a greater burden on the healthcare industry. While climate change is a complex issue with many contributing factors, the health of future generations is of paramount importance to us as a sector. We must, therefore, address the environmental footprint of laboratories and take action to mitigate the effects of our operations," she said.

For the past five years, Freiburg Medical has been implementing sustainable practices across its UAE facility. This includes using energy-efficient LED lighting, reducing water usage, and utilising more environmentally friendly instruments. Additionally, the company works closely with its suppliers to ensure that sustainable practices are adopted.

Tom Coleman, Exhibition Director at Informa Markets Healthcare, agrees that even small initiatives can make a difference: "As the region's largest medical laboratory exhibition and congress, sustainability has become a paramount focus for Medlab Middle East. Even small conservation efforts can lead to significant environmental and cost benefits for laboratories, this is why laboratory sustainability is becoming a top priority."

In the absence of official guidelines, laboratories can adopt simple strategies to reduce their energy consumption. For instance, turning off unused lights and equipment, and replacing traditional lighting with LED lighting which offers better light quality and consumes less energy. Moreover, it is essential to conduct regular equipment checks and maintenance, use tap water instead of pure water, and separate waste.

Laboratories rely heavily on plastic products such as gloves, tubes, flasks, beakers and single-use pipette tips. By introducing a plastic recycling process and reuse programmes, labs can reduce their waste. Laboratories can also use ACT labels — like an eco-nutrition label — which outlines the accountability, consistency and transparency in production, energy and water consumption and end-of-life disposal for laboratory items.

The Sustainability in the Laboratory conference will feature experts from the UAE, US, UK, and Germany who will share success stories and strategies for building a green culture in laboratory facilities. Attendees will learn how to implement sustainable practices that can improve efficiency and reduce the environmental effects of their operations. Adhering to these practices could lead to benefits such as a reduction in harmful waste and increased productivity.


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Top five innovative lab tests revealed

These innovations underscore a trend towards more personalised, efficient, and accessible diagnostic solutions, significantly impacting patient care and the overall healthcare landscape.

By Anthony Permal

The field of lab testing technology for diagnostics has seen significant advancements in the past year, with innovations enhancing the accuracy, efficiency, and accessibility of diagnostic procedures. At the show, we came across several new technologies and updates, five of which made our list of most interesting and innovative products on the show floor.

Biomerieux: Biofire Spotfire

The COVID-19 pandemic demonstrated the need for healthcare professionals to have diagnostic tests available as close as possible to the patient, providing actionable results quickly. Syndromic testing is a symptom-driven broad grouping of probable pathogens into one, rapid test that maximises the chance of getting the right answer in a clinically relevant timeframe. Enter the Biofire Spotfire device being showcased at Medlab 2024 by Biomerieux. The new BIOFIRE SPOTFIRE R Panel Mini detects five of the most common viral causes of upper respiratory tract infections: SARS-CoV-2, Influenza A, Influenza B, Respiratory Syncytial Virus (RSV), and Rhinovirus, in about 15 minutes. This innovative new product offers two separate options, one for respiratory and the other for sore throat testing. It uses one PCR test to provide two separate uses, with 15 targets and delivering results in 15 minutes. The device helps inform clinical decisions by testing for more than flu, RSV and SARS-CoV2 but also does so in a timeframe that informs a definitive diagnosis, optimises care and supports antimicrobial stewardship.

Boule: H50V veterinary haematology system

It isn't just human health that is a focus at Medlab Middle East. Pets and animals too are a key focus. One of the major innovations spotted at Medlab is the veterinary diagnostic tool by Boule, namely the H50V veterinary haematology system. The H50V is equipped with 13 predefined animal profiles and up to 34 analysed parameters, making it a flexible system that meets the requirements of many types of veterinary clinics and laboratories. The H50V features a five-part white blood cell (WBC) differential with results delivered within one minute. It is compact and easy to use with an intuitive touchscreen interface and comes with a built-in mixer. Built to provide a cost-efficient option for animal health screenings and disease investigations, it offers laser flow cytometry, impedance and colourimetry technology.

Hilab Brazil: Point-of-care haematology analyser

Hilab Brazil is a biotech company that developed a set of portable, accessible and reliable point-of-care diagnostic devices to provide results in minutes with the same quality as traditional labs. Depending on which device used, the results can reach the patient within 30 minutes with a single drop of sample blood. Their IoT-enabled devices perform blood tests and their platform in the cloud delivers the lab reports in real-time.

Their Hilab Molecular RT-Lamp device, launching this year, tests for the Human papillomavirus (HPV), dengue, Zika and Chikungunya. It is a unique diagnostic telemedicine device on the market, with results within one hour. The RT-Lamp is an isothermal DNA amplification technique, using a DNA polymerase enzyme with strip detachment activity, and primers that form loops on the DNA strand, giving it the advantage of being faster compared to PCR with equivalent precision. Detection of PCR-LAMP is done by fluorescence or colourimetry. Molecular testing of COVID-19 in the palm of our hand is now possible with this tech.

Epitope Diagnostics: ECL-25 and ECL-100 fully automated chemiluminescent immunoassay analyser

Fully automated, random-access chemiluminescent immunoassay systems that offer an all in one solution for niche as well as routine clinical lab tests in areas such as tumor markers, endocrine markers, gastro markers, thryoid markers, bone markers, reproductive hormones, anemia markers and cardiac markers.

The devices are fully automated for routine clinical laboratory operations, and come with STAT feature for emergency sampling and in-process loading for more samples and tests. It is compact with an onboard touch screen computer, multiple ECL25 analysers for different sections in the lab with dedicated test panels, i.e. emergency cardiac tests, niche serum markers, stool sample GI test panel and more. The data is exportable via USB port.

Goldsite: Specific Protein Analyser

In the world of lab testing, the smaller or more portable a critical diagnostic testing tool is, the better. Enter the smallest innovative specific protein analyser, Goldsite's GPP-100.

A fully automatic, quantitative analyser, it comes in a compact, easy-to-carry design with a built-in thermal printer and a colour touch screen focused on 21 assays, including cardiac, immune disease, rheumatoid disease, acute phase disease, coagulation, renal and diabetes. It is suitable for a variety of lab setups including kidney centres and general practice labs.

Identifying and reducing the cost of quality in the lab

Determining the cost of quality is a critical aspect of laboratory management that directly impacts its financial health and its ability to provide high-quality services.

By Anthony Permal

Determining the cost of quality is a critical component of laboratory management, ensuring the delivery of reliable and accurate results while maintaining financial efficiency.

At the Lab Quality Management Conference, Dr. Barb Jones, PhD, CEO of Clinical and Laboratory Standards Institute (CLSI), led a powerful opening session where she indicated how quality costs are often divided into four main categories: prevention costs, appraisal costs, internal failure costs, and external failure costs. Each of these plays a vital role in the overall management of laboratory operations, influencing both the quality of laboratory outputs and, from a business-critical perspective, the financial health of the organisation.

When we speak about laboratory management, the term and understanding of the word quality transcends the mere accuracy of test results. It is a holistic understanding encompassing reliability, timeliness, and relevance of these results to clinical or research outcomes. Keeping this in mind, the determination of quality costs is not just an accounting exercise but a strategic tool that laboratory managers use to identify inefficiencies, reduce waste, and improve overall service levels.

Let us look at the components that Dr. Jones identified to determine the cost of quality, and how to find a better ROI for the same.

Principles of Lean Management

There are four main principles of Lean Management, which when attributed to quality come into the following four main statements:

1. We cannot reduce costs without affecting quality
2. We can improve quality without increasing the cost
3. We can reduce costs by improving quality
4. We can reduce costs by reducing variation.

When we do so, performance and quality will automatically improve.

When we understand these major elements, we conclude three major cost categories in quality:

- Visible, Hidden and Intangible costs

Visible costs include the obvious costs one prepares and budgets for, including test results, sample collection, talent and operations. Hidden costs are the costs we can imply but not clearly attribute at the start, including re-sampling and retesting, re-collection of samples in case of damage or faulty initial collection, errors in results, technical faults, and more.

Intangible costs are those that cannot be easily or immediately quantified, including employee redundancy, market situation, changing manufacturing standards, and lack of marketing, among others. The true cost of quality, Dr. Jones underlined, was the cost of poor quality. Even if you have good quality in place, any form of poor quality in the lab will ultimately result in costing you more.

Determining the cost of quality is a critical aspect of laboratory management that directly impacts the laboratory's financial health and its ability to provide high-quality services. By understanding and managing the components of quality costs, laboratory managers can make informed decisions that enhance the efficiency and effectiveness of their operations.

In conclusion, Dr. Jones also mentioned that as of the start of 2024, the CLSI standards were now available worldwide with a heavy discount of up to 90 per cent to poor and low-economy countries to help them raise their standard of lab quality, something that the audience of lab specialists at the conference was very pleased with.

Optimising the global medical laboratory workforce through ASCP BOC credentials

Specific credentials not only enhance professional skills but also opens new avenues for recruitment and retention.

By Dr. Amy Spiczka

The medical laboratory field is facing a significant global workforce challenge. This shortage is due to the recent and ongoing effects of a worldwide pandemic, recruitment, and retention opportunities, as well as increased demand for laboratory services. As challenging as these issues are, they also present prospects for growth and innovation in pathology and laboratory medicine.

As decision-makers at all levels seek and implement multi-faceted solutions, leveraging credentials such as those offered by the American Society for Clinical Pathology, Board of Certification (ASCP BOC) is emerging as a key strategy. This strategy not only enhances professional skills but also opens new avenues for recruitment and retention.

Who is the ASCP BOC?

ASCP BOC is a nearly 100-year-old credentialing agency for laboratory professionals. Since ASCP BOC's establishment in 1928, they have credentialed over 625,000 laboratory professionals worldwide. In 2006, ASCP BOC began certifying laboratory professionals with an international "ASCPi" designation. To date, examination applicants span 130 countries and over 22,000 individuals have been ASCPi credentialed from 117 countries.1

Since offering ASCPi in 2006, the ASCP BOC has worked with diverse, patient-centric organisations and regulatory agencies across the globe to implement and enhance strategic engagement plans for credentialing laboratory professionals.

Global workforce challenges in the medical laboratory field

According to the ASCP BOC's 2022 ASCP Survey, many laboratories around the world report difficulties in filling open positions. This shortage impacts the quality of patient care and the effectiveness of laboratory operations.

Credential examinations add value to the global laboratory workforce by creating a reliable and cost-effective means to ensure that laboratory team members are competent, have essential knowledge sets, and are likewise patient-centric to assure high-quality, safe outcomes. ASCP BOC believes that laboratory professionals should possess appropriate academic and clinical training, pass competency-based examinations conducted by an approved credentialing organisation, and participate in continuing education programmes for ongoing professional development.

Credentialing of laboratory professionals is also the recommended approach to address the US and global medical laboratory workforce shortage. In the article, "Severe Shortages of Qualified Medical Laboratory Professionals", the primary resolution to help address the workforce shortage is to recruit qualified board-certified laboratory professionals.

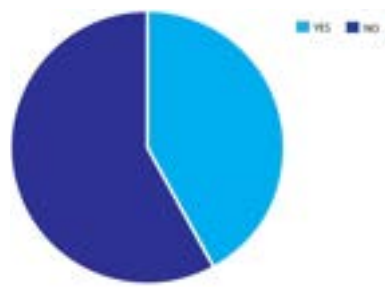
For the next generation of laboratory professionals in the US, this means that at point of graduation these professionals take a credential examination to become board-certified by organisations such as ASCP BOC. Additionally, many employers in medical laboratory and pathology practices offer on-the-job training, which complements the formal credentialing process. This hands-on experience, coupled with the intrinsic value of ASCP BOC credentials, provides a robust pathway to success for laboratory professionals. It not only enhances their skills and knowledge but also contributes significantly to expanding the laboratory professional workforce in unique sectors.

Similarly, ASCP BOC advocates for competency-based examinations conducted by an approved credentialing organisation internationally. Towards this, ASCP BOC credentials have received both official and unofficial endorsements from countries and organisations in the Middle East & North Africa, Latin America, and Asia.

How do we know that ASCP BOC credentials add value to the laboratory by ensuring laboratory team members are knowledgeable, skilled, and contributory? In 2019, the Institute for Credentialing Excellence (ICE) administered a multi-organisational survey to measure the value that credential holders place on certification. This survey collected data from a large sampling (>12,000 individuals) of credential holders representing six organisations.

ASCP[i] credential holders by country of education

2022 ASCP[i] Survey



2022 ASCP[i] Survey

This survey sought to define credential holders' attitudes toward and experiences with certification examinations and credentialing. The survey results indicated that respondents consider certification to be very valuable to their profession, certification requirements are appropriate, ethics and code of conduct for the certifying body are beneficial to the profession, and credentialing is important for improving competence and performance in the profession.

Workforce challenges in the MENA region

In the Middle East and North Africa (MENA) region, the situation is more acute due to rapid population growth, increased prevalence of chronic diseases, and a limited number of training programmes for laboratory and other healthcare professionals. A study published in the Frontiers of Public Health highlights the shortage of skilled personnel in this region. Moreover, political instability and economic challenges in some MENA countries exacerbate the problem by leading to brain drain and limited investment in healthcare infrastructure.

Is there a laboratory workforce shortage in the UAE?

Leveraging inclusion, diversity, equity, and access (IDEA)

Sustainability in the medical laboratory and pathology context extends beyond environmental concerns. It encompasses social sustainability, which involves elevating a stable and skilled workforce in the face of challenges such as migration and talent shortages. Laboratories that adopt strategies like providing continuous professional development opportunities, career ladders based on specialist or additional credentials, fostering a positive work environment, and promoting work-life balance to retain skilled staff thrive, despite challenges. This approach not only enhances employee satisfaction but also attracts new talent.

Inclusion, diversity, equity, and access are critical components of a sustainable laboratory workforce. By creating an inclusive environment that values diversity and access, laboratories can tap into a broader talent pool and one that reflects their local community and patients. This approach is particularly important in regions like MENA, where diverse cultural backgrounds are the norm. Implementing policies that promote equity, such as equal pay for equal work and opportunities for career advancement, can elevate the retention of a diverse workforce.

ASCP BOC credentials play a vital role in promoting IDEA for the laboratory workforce. By providing a standardised assessment of skills and knowledge, these credentials ensure that all professionals, regardless of their background, are evaluated based on their competence. This objective evaluation system supports the principles of equity, access, and fairness in the workplace.

Future state

The global workforce shortage in the medical laboratory field poses significant challenges, particularly in regions like MENA. However, by leveraging ASCP BOC credentials, laboratory decision-makers and leaders at all levels can ensure a high standard of competency among their team members. Additionally, focusing on sustainability, including social aspects like workforce migration and shortage, while embracing IDEA principles, can help laboratories attract and retain a diverse and skilled workforce. This holistic approach is essential for addressing the current challenges and ensuring the long-term viability of medical laboratory professions.

References available on request.

Dr. Amy Spiczka, MS, HTL(ASCP)CM SCT, MBCM, CPHQ, is the Executive Director at the ASCP Board of Certification. She will be speaking at the Sustainability in the Lab conference at 12.20pm on February 8.

Fostering future leaders in the medical laboratory

Mezna Al Ali from the Higher Colleges of Technology (HCT) wins first place at the 2024 Scientific Poster Competition.

By Farhana Chowdhury

Mezna Al Ali, representing the UAE Higher Colleges of Technology (HCT), was crowned the winner of the 2024 Scientific Poster Competition, which took place between Zabeel Hall 3 and Zabeel Hall 6 link on Tuesday.

Her submission was on the topic, "Prevalence and correlation of Transfusion-Transmitted Infections (TTI) with the distribution of ABO, Rh and Kell Blood Group Types among Blood Donors in Abu Dhabi, Al-Ain, and Al-Dhafra regions, UAE; A 5-Year Retrospective Study".

In an exclusive interview with Al Ali, she expressed her desire to help the UAE enhance its ever-evolving preventative medicine sphere and hopes to shed more light on this specific topic.

"In the future, I hope to conduct larger studies with more representable information and have our work published in famous journals such as PubMed."

Al Ali, who recently graduated and started work as a medical lab technologist, will receive a research grant of a value of up to US$3,000 from EXPRESSMED Diagnostics and Research. When asked about her win at the event, Al Ali said she was confident about securing first place. "It was expected, and I was very well prepared for this. I wouldn't have achieved this without the support of my peers and family. I would like to thank them as well as HCT for making this happen."

The second and third place was awarded to Mohammed Al Khamees, King Fahad Hospital, Al Hofuf, Saudi Arabia, and Irhum Syed Imtiaz from the University of Sharjah, UAE, respectively. Al Khamees' presentation was on the "Haematological Characteristics of Patients with Sickle Cell Disease in Al Ahsa, Saudi Arabia", while Imtiaz presented the "Effect of Candida auris Secretions on Human Monocyte-Derived Macrophages".

The annual Scientific Poster Competition is a highly anticipated segment at Medlab Middle East that gives researchers a platform to present their work on some of the pressing topics affecting the laboratory sector.

Commenting on this, judge Dr. Carlo Kaabar, Medical Director — North at Purelab, said: "It is a great initiative by Medlab Middle East, and I believe it is a great way to encourage young scientists to display their work. Not everyone is comfortable getting on stage and giving a full lecture, but this opens the door for them to build towards that future. It gives them extra confidence as they get to speak for six minutes and answer a few questions about their research."

Earlier this month, participants submitted a 300-word abstract aligned with a core focus area in advance — namely across the topics of Laboratory management, Lab Quality Management, Clinical Chemistry, Immunology, Haematology, Clinical Microbiology, Clinical Genomic Interpretation, Blood Transfusion Medicine, Histopathology, Sustainability in the Laboratory, and Nextgen Medicine. Complete with an introduction, objective and conclusion, participants are selected based on the relevance and clarity of their projects alongside scientific accuracy, clarity, and the potential impact on healthcare practices.

After a rigorous filter by an esteemed scientific committee, nine finalists were selected, and their research displayed at Medlab for a chance to speak further on the project.

"Research, after all, is a very big part of the medical laboratory," said Dr. Kaabar. "The healthcare landscape is changing, and there's an impact on the labs, when in fact, it should be the opposite where the lab should be impacting the healthcare because many clinical decisions are based on what happens in the lab. Competitions such as the Scientific Poster Competition at Medlab are designed to encourage young scientists especially but we open it up for other people as well," he concluded.

Recent advances in health-tech solutions

Technological leaps are not just reshaping healthcare but are also pivotal in improving the quality of life.

By Anthony Permal

The health-tech industry is currently undergoing a transformative phase, marked by groundbreaking advancements and technical innovations in cutting-edge technologies such as robotics, machine learning, gene-tech, quantum computing and more to develop solutions that are not only enhancing efficiency and effectiveness in healthcare services but also making them more personalised and accessible.

Dr. Louiza Chitour, Program Manager, HealthTech, Plug and Play Abu Dhabi, delved deeper into this exciting era of health-tech at the NextGen Medicine Conference at Medlab Middle East 2024, making it clear that these technological leaps are not just reshaping healthcare but are also pivotal in improving the quality of life and health outcomes for individuals around the globe and particularly in the GCC.

While mainstream conversations in public are all about advancements in artificial intelligence and machine learning, Dr. Chitour highlighted major innovations that are taking place in 'backbone' technologies that truly drive speciality care. Some of them include:

Robotics: Robotics is an increasingly pivotal technology in the medlab space, particularly in areas requiring efficiency, accuracy, and safety. Areas where robotics is making significant advances include automation of routine tasks, high-throughput screening in drug discovery and research labs, handling thousands of samples per day, significantly speeding up the discovery process for new drugs and therapies, and precision and accuracy, by offering these in tasks such as liquid handling, which is crucial for experiments that require exact volumes and concentrations.

Quantum computing: Still in the early stages of development and application, it could potentially revolutionise fields, including medical research and diagnostics, particularly in drug discovery and development, protein folding, genomic analysis, medical imaging, and optimisation problems.

CRISPR: A revolutionary gene-editing technology, it has transformed the fields of genetics and molecular biology. It is based on a natural defence mechanism found in many bacteria, which use CRISPR sequences and associated proteins (such as Cas9) to protect themselves against viruses by targeting and slicing the DNA of invading viruses. CRISPR has been adapted for use in laboratory settings to edit genes in a precise and efficient manner to treat genetic disorders and study gene functions in basic research.

Dr. Chitour also spoke briefly about other technologies but led the conversation towards practical applications in a business context, highly relevant for the funding of such innovations.

In the GCC, she observed, health-tech innovation is more focused around a few key areas of interest, with a total investment of about US$ 2.45 billion, including in Remote Devices, Research Solutions, Medical Diagnostics (which takes about 37 per cent of the investment pie), Patient Solutions and Health Management Solutions, among others.

This is 1 per cent of the total GCC healthcare market size of US$ 250 billion. The investment includes the funding for more than 632 ventures, with at least 60 regulatory filings to date.

We are at a pivotal juncture in health-tech innovation and investment, Dr. Chitour concluded, and the advancements will only serve to better the healthcare systems in the GCC.

viSole UAE launches groundbreaking diagnostic solutions

Lab Diagnostic System marks a transformative shift in the diagnostic landscape as the first company in Pakistan to locally manufacture in-vitro diagnostics (IVD) products.

From the platform of viSole UAE, Lab Diagnostic System (LDS), a trailblazer in Pakistan's healthcare industry, is set to showcase its advanced diagnostic solutions at the show. As a leading force in in-vitro diagnostics in Pakistan, LDS has redefined diagnostic procedures, setting new standards for quality and innovation.

LDS stands as the first company in Pakistan to locally manufacture in-vitro diagnostics (IVD) products, marking a transformative shift in the diagnostic landscape. Recognising the unique healthcare challenges in Pakistan, we strategically established a local manufacturing plant to enhance the nation's healthcare system, reduce reliance on imported diagnostics, and ensure the availability of high-quality products meeting international standards. This strategic move positions LDS to meet the specific needs of the Pakistani healthcare system by providing affordable and reliable diagnostic instruments. Our manufacturing facility allows us to offer a diverse range of IVD solutions tailored to address the challenges faced by healthcare professionals in terms of customisation, accessibility, and cost.

At the forefront of our offerings is the i-Sugar glucose monitoring device. This advanced device is designed to cater specifically to diabetic individuals, providing an efficient and user-friendly solution to monitor sugar levels. Moreover, our comprehensive

R-test rapid test line includes diagnostics for infectious diseases, vector-borne, STDs, GIT diseases, parasitology and respiratory infections. This demonstrates our dedication to providing quick and accurate diagnostic solutions for critical health conditions, facilitating timely interventions and improving patient outcomes. Highlighting our commitment to Point-of-Care Testing (POCT), we are proud to present the piXi-100 POCT coagulation analyzer and staGna-100 POCT chemistry analyzer. In the realm of molecular diagnostics, our viGen product line takes center stage. The viGen molecular diagnostics product line includes the viGen viral nucleic acid auto-extraction kit and the viGen-Q Typhoid PCR kit.

Adding to our repertoire is the latest addition — a self-kit capable of simultaneously detecting three viral infections. Rtest 3 in 1 self-kit offers a convenient and accessible solution for individuals to perform diagnostic tests at home, contributing to early detection and monitoring of Flu A+B Ag, RSV Ag, and Covid-19 Ag, addressing the pressing need for accessible diagnostic solutions in the current global health landscape. Other self-tests include Dengue, HCV and midstream hCG, to name a few.

Its focus on accessibility and cost ensures that healthcare institutions across Pakistan, particularly in underserved regions, can benefit from its diagnostic solutions. Having witnessed the poor state of Pakistan's health sector and its dependence on imported diagnostic tools, the impact of this strategic move became even more apparent during the challenges posed by COVID-19. The pandemic highlighted the critical importance of local manufacturing in ensuring a resilient healthcare system.

As LDS participates in Medlab Middle East 2024, attendees are invited to explore their booth and witness the impact of its innovative diagnostic solutions. Join the team in shaping a healthier tomorrow by embracing local manufacturing and advancing diagnostic capabilities.

Visit viSole at stand Z2.F14

Staffing concerns severely impact the medical laboratory industry

Laboratory Management conference highlights critical reasons behind the shortage of professional talent.

By Anthony Permal

The medical laboratory sector faces significant staffing challenges, impacting the efficiency and quality of healthcare services delivery. These challenges stem from a combination of factors, including an ageing workforce, a shortage of qualified professionals, and increasing demand for medical laboratory services.

The Laboratory Management Conference, held as part of Medlab 2024 in Dubai, began its proceedings with a concerted presentation led by Dr. Maher A Sughayer, President, Jordan Society of Pathology, Full Member & Chair, Dept of Pathology and Lab Medicine, King Hussein Cancer Centre, Amman, Jordan.

Dr. Sughayer presented several reasons the sector has had personnel challenges. A primary issue is an ageing workforce. Many experienced laboratory professionals are nearing retirement, and there is a notable lack of younger workers entering the field to replace them. This generational gap threatens the continuity and accumulation of specialised knowledge within the profession. Another key, and related challenge, is the shortage of qualified professionals. Despite the critical role medical laboratories play in diagnosis, treatment, and research, the profession struggles to attract new talent. This is partly due to the lack of visibility and understanding of the profession's importance among potential candidates.

Additionally, the rigorous educational and certification requirements, although necessary for maintaining high standards, can be a barrier to entry for many.

There is also a severe lack of data and research on the number of medical laboratory professionals currently in the GCC and Middle East workforce, itself a reflection of the lack of importance given as opposed to other healthcare workers like physicians, nurses and midwives.

The increasing demand for medical laboratory services further entrenches these staffing issues. Advances in medical technology and the growing emphasis on preventive medicine have led to an increased need for laboratory tests. This rising demand, coupled with staffing shortages, puts considerable pressure on existing laboratory personnel, leading to burnout and further exacerbating the staffing crisis. Related concerns involve remuneration issues, lower budgets and lack of recognition despite being the backbone of clinical diagnoses.

To address these challenges, stakeholders must adopt a multifaceted approach, offered Dr. Sughayer. This could include efforts to enhance the visibility and attractiveness of the profession, streamline the pathway to entering the field, and invest in the retention and continuous education of current laboratory professionals. Additionally, leveraging automation and AI can alleviate the workload, allowing human resources to be used more effectively and efficiently.

Empowering the next generation of laboratory leaders

LabQ and Labpreneur set to ignite passion and unleash innovation in a friendly showdown.

By Farhana Chowdhury

UAE-based senior college and university students majoring in medical laboratory sciences will engage in a battle of wits on February 8, in hopes of being crowned the ultimate champion. Known as LabQ, the quiz competition returns for its second edition this year to nurture young minds and reignite a passion for pathology and laboratory medicine.

For the students, this would be a golden opportunity to not only demonstrate their holistic understanding of the field but also apply critical thinking and problem-solving skills under the spotlight.

Laboratory medicine can be considered a team sport, thanks to its features of multidisciplinary collaboration, the interdependence of roles, and communication skills. LabQ aims to bring these qualities to the forefront during the competition and equip students with skills ranging from seamless coordination to accuracy in knowledge and improved troubleshooting.

Additionally, LabQ extends itself as a platform for networking and collaboration, giving students a comfortable setting to interact with peers from other institutions as well as real-life laboratory professionals at the show.

The competing institutions are Gulf Medical University, Higher College of Technology, Liwa College and the University of Sharjah. The session is set to take place from 3pm to 5pm at the NextGen Room in Zabeel Hall 7.

Bringing the next big idea to the forefront, Labpreneur will open the floor to some of the world's exciting start-ups and their inspiring journey to shape the future of laboratory medicine. Submissions took place earlier this year, and the selected contenders are:

- **AIDENTIS:** Aims to revolutionise dental diagnostics with cutting-edge AI-powered solution (Kazakhstan)
- **Enbiosis Biotechnology:** Clinically proven AI-driven microbiome-based precision nutrition (UK)
- **eTabeb:** Free conventional mobile app for users to book and manage their medical appointments with healthcare facilities (KSA)
- **IHealthScreen:** Aims to develop novel, innovative software for retinal image grading and diagnosis of diseases and screen diseases for early detection (UAE)
- **LinkiDoo:** Known to be the first matchmaker between pharmaceutical brands and worldwide pharmaceutical distributors (France)
- **MDBX Health:** Aids patients with medication management, being connected to their physicians between appointments, and staying on track for a happier, healthier life (UAE)
- **Phys:** Features a combination of cutting-edge AR technology with the critical task of managing children's screen time (KSA)
- **Xana Medical Ltd — Pocket Lab:** Real-time at-home personalised health and wellness testing (UK)
- **Ziagno:** Enables access to primary healthcare by offering an innovative solution through AI-powered accurate diagnostics and personalised healthcare services (UAE)

Each representative will receive four minutes to share their pitch to an esteemed panel of judges featuring industry leaders Sion Hau, Ventures Associate, Plug and Play Abu Dhabi; Zeina Youseff, Operations Support Manager, Rainmaking; Unmesh Lal, Global Director, Healthcare & Life Sciences, Frost & Sullivan; Dr. Sadyk Gusniev, MD, MBA, HealthTech Expert and Researcher; and Dr. Chethan Belludi, Consultant Physician, PureLab, Abu Dhabi.

They will also receive an additional five minutes for Q&A session to showcase their progressive ideas for a chance to win the prestigious title, a complimentary Exhibition Stand Space at Medlab Middle East 2025.

Labpreneur
Time: 11am-12.30
Venue: Cape Town Room, Zabeel Hall 1

LabQ
Time: 3pm-5pm
Venue: NextGen Room, Zabeel Hall 7

Discover revolutionary diagnostic solutions

PureLab unlocks the 'healthcare of tomorrow' at the show.

Medlab presents a remarkable opportunity for attendees to gain access to cutting-edge advancements, research findings, and emerging trends in diagnostic techniques, laboratory technologies, and digital pathology. As such, PureLab — a subsidiary of PureHealth, one of the largest healthcare platforms in the Middle East and operator of the largest network of around 150 laboratories in the region — is proud to be showcasing its innovative solutions at the show, which reflect its commitment to being 'always dependable' and ensuring that patients receive the highest quality healthcare services.

Arindam Haldar, Chief Executive Officer, PureLab said: "We are pleased to be participating in Medlab Middle East this year to highlight our innovative diagnostic solutions that have the power to advance the UAE's healthcare ecosystem and contribute to national health security. In line with our vision 'to unlock tomorrow's healthcare today', we look forward to engaging with industry professionals in the region and showcasing PureLab's ongoing efforts in driving precision-driven results that are playing a key role in enhancing patient care."

With an expected attendee count of 30,000 and more, the 2024 edition of Medlab promises to be a platform for knowledge sharing, forging connections and business-building opportunities. Attendees are invited to visit PureLab's booth in Zabeel Hall 5 to explore its solutions for better, faster, and more accurate diagnostic results.

Through its precision-driven results, PureLab plays a crucial role in protecting public health and enhancing patient care, aligning with the UAE's vision of creating a world-class healthcare system.

PureLab — a comprehensive laboratory operation

PureLab, a PureHealth asset, operates and manages the largest network of laboratories in the region; these also include the largest network of ISO ISO-accredited laboratories currently totalling around 150 labs across the UAE.

PureLab is a comprehensive laboratory operation that supports both the public and private sectors by providing the largest in-house test menu. We leverage economies of scale with our high volume of tests — over 25 million tests conducted per year — and we run an agile operation that ensures accurate, reliable, and timely diagnostics, delivered to our customers.

It also plays a pivotal role in using its laboratory diagnostics network to conduct public screening programmes and population health management, as well as spearheading COVID-19 screening efforts in the UAE. Bringing in unparalleled efficiencies and redefining industry standards, PureLab has proven itself as a partner of choice.

Integrated healthcare platform

By advancing the Science of Longevity, PureHealth is introducing the healthcare of the future from the UAE to the rest of the world. PureHealth is the UAE's largest integrated healthcare platform with an ecosystem that challenges lifespans and reimagines health spans. With 25-plus hospitals, 100-plus clinics, multiple diagnostic centres, health insurance solutions, pharmacies, health tech, procurement, investments and more, its groundbreaking innovations are at the forefront of healthcare as the company is on a mission to unlock time for humankind.

Pure Health's network of healthcare facilities comprises:

- SEHA (Abu Dhabi Health Services Company) – One of the largest healthcare networks of hospitals and clinics in the UAE
- Daman (The National Health Insurance Company) – The UAE's leading health insurer
- The Medical Office – Overseeing Sheikh Khalifa Hospitals and healthcare facilities established under the initiatives of H.H. The President of the UAE
- Rafed – The UAE's largest healthcare Group Purchasing Organisation
- PureLab – Managing and operating the largest network of laboratories in the region
- Abu Dhabi Stem Cells Center – Specialist healthcare centre focused on cell therapy and regenerative medicine
- One Health – Sales, service support, and engineering network that provides end-to-end medical solutions to a base of over 300 healthcare service providers
- The Life Corner – Abu Dhabi's first holistic pharmacy, serving the health and wellness establishment
- Ardent Health Services – The fourth largest privately held acute care hospital operator in the US
- Circle Health Group – The largest independent operators of hospitals in the UK

Visit PureLab at stand Z5.A10

Arindam Haldar

Accessible and reliable diagnostic test kits to improve user experience

The ABO & Rhd Blood Grouping Kit by Anbio Biotechnology is based on the principle of antigen-antibody dot immune filtration assay to provide convenience and accuracy in testing blood types.

Anbio Biotechnology, a leading global diagnostic device and assay company is showcasing the ABO & Rhd Blood Grouping Kit —a qualitative detection test kit for the ABO and D antigen of the Rhd blood group system on human red blood cells in whole blood or 10 per cent red cell suspensions in physiological saline at the show. Anbio's ABO & Rhd Blood Grouping Kit applies the Dot-filtration method and can acquire accurate results from fresh fingertip blood in as little as one minute, with a storage time of 24 months, and it does not require special refrigeration or cold-chain transportation. Medlab Middle East is going to be the first appearance of Anbio's ABO & Rhd Blood Grouping Kit at an overseas exhibition.

Blood types play a crucial role in medicine, especially in blood transfusions, organ transplants, and during pregnancy. Knowing an individual's blood type ensures the safety and effectiveness of medical procedures. The ABO & Rhd Blood Grouping Kit is based on the principle of antigen-antibody dot immune filtration assay to provide convenience and accuracy in testing blood types for clinical use and emergency situations. It can quickly display blood type information through paper strip reactions, representing a modern approach to blood type testing.

"Anbio is consistently dedicated to developing easy-to-access and reliable diagnostic test kits for improving user experience in various application scenarios," said Michael Lau, CEO of Anbio Biotechnology. "Anbio's ABO & Rhd Blood Grouping Kit provides a simple way for blood type testing with low requirements for user environment, storage, and transportation while ensuring the accuracy of the results. The target market of this product will be mainly focusing on the Middle East, Asia, and Africa regions. We will continue to invest in user-centric, affordable, and reliable Point-of-Care Testing solutions and bring them to the world."Anbio Biotechnology is devoted to making contributions to human health and has never stopped our goal to innovate in life sciences. Driven by continuous technical development and integration, resulting from close cooperation with prestigious institutes across the world. It strives to provide total solutions in the clinical diagnosis field, by offering extensive diagnostic products including laboratory and point-of-care products.

Visit Anbio at stand Z1.G30

Harness genomic data to enhance quality of life

Genomic research in the region is key to improving health span, say experts at NextGen conference.

According to the recently published Global Healthspan Report: A New Agenda for Global Health, cardiovascular disease, cancer and obesity represent one-third of the disease burden in the Middle East and Africa (MENA) region. In Saudi Arabia, in particular, non-communicable disease prevalence is 32.15 per cent and is responsible for 73 per cent of all deaths. Meanwhile, in Oman, almost 20 per cent of all colorectal cancer patients were diagnosed under the age of 40, partly attributed to changes in lifestyle and the adoption of Western diets.

Speaking at the NextGen Medicine conference, Dr. Karolina Kobus, Head of Molecular Genomics and Precision Medicine Laboratory and Technology and Innovation Advisor, EXPRESSMED Diagnostics and Research, emphasised that genomic data, personalised medicine, along with emerging technologies such as artificial intelligence (AI) can improve preventative strategies and enhance, not just the length, but the quality of our lives.

Dr. Kobus added: "Also of critical importance are the local genomics initiatives being carried out, such as the Emirati Genome Programme and the Qatar Genome Programme, focusing on building internal capacities and limiting outsourcing. We must also understand why preventative and diagnostic strategies should be tailored to the genetic makeup of the local population."

The NextGen Medicine Conference, chaired by Dr. Kobus, delved into the intersection of medicine and artificial intelligence, discussing cutting-edge AI applications in diagnostics, treatment development, personalised medicine, and healthcare delivery.

Elsewhere on the agenda, Dr. Mohammed Uddin from the Mohammed bin Rashid University of Medicine and Health Sciences in Dubai discussed recent Arab Genome initiatives at the Centre for Applied and Translational Genomics (CATG) and Dr. Anas Hamad from the Hamad Medical Corporation in Qatar highlighted the importance of precision oncology and pharmacogenetics. Other topics included a Middle Eastern perspective on breast cancer genomics, personalised oncology, and artificial intelligence in pathology.

The conference forms part of the newly introduced NextGen Medicine feature at Medlab Middle East, hosted in partnership with Bahrain-based ExpressMed Diagnostics and Research. The NextGen Medicine zone and conference showcases over 100 exhibitors and focuses on a pioneering area in the medical laboratory field that aims to customise healthcare for individuals, using advanced technologies and new developments in medical science.

Tom Coleman, Senior Exhibition Director, Medlab Series, Informa Markets, said: "At Medlab Middle East 2024, leading researchers in NextGen medicine, collaborating with ExpressMed Diagnostics and Research, aim to enhance global science and regional healthcare through genome sequencing tailored treatments. Genetic disorders are widespread in the Arab world, making it vital to understand genetics. The UAE's 10-year genome strategy and advanced technologies like AI will benefit Emiratis and researchers studying Arab populations' healthcare needs."

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