

10th DiMiMED – Information about MEDICA Trade Fair

DiMiMED is unique as an International Conference on Disaster and Military Medicine because it takes place in Dusseldorf against the backdrop of the MEDICA Trade Fair. The latter is one of Europe's largest medical trade fairs and offers an insight into the future of healthcare.

Attendees of the DiMiMED Conference have an opportunity to visit the Trade Fair but, such is the size of MEDICA, are best advised to select in advance those areas of special interest to maximise the benefits to be gained from a visit. The aim of this short paper is to highlight some of the areas/exhibits which might be of special interest to members of the Military and Disaster Medical Community.

It is not meant to be a comprehensive overview of the Trade Fair but hopefully will, like a good aperitif, stimulate the appetite and encourage further exploration. As such it has no "official standing" and merely reflects those areas that triggered the author's curiosity!

SARS-CoV-2 and even more recently, the Monkey Pox Virus have illustrated how small the world has become. International travel means that infectious disease is no respecter of country boundaries and can spread rapidly. Global Warming and Climate Change is also likely to expose populations to infectious diseases beyond indigenous experiences and patterns. The earlier an infectious disease can be identified, the greater the chance of preventing further spread, and there is therefore a requirement to expand the differential diagnosis in considering a common set of generic symptoms. Thankfully, medical science has responded to this challenge in developing a range of in vitro diagnostic tests to assist in the identification of the specific pathogen. For this purpose, blood, urine and saliva samples can be used. Some of these come in the form of Rapid Antigen Tests, while others require laboratory equipment of varying sophistication, but all are designed to give a speedy result. There are a huge number of exhibitors offering such tests and the MEDICA website can help you to identify those of particular interest.

In vitro diagnostics are not confined to Infectious Diseases. There is also an expansion in the number of exhibitors offering genetic screening for various diseases as well as predisposing genetic information. Molecular diagnostics are becoming less sophisticated and are gradually being brought to the bedside – what was once the exclusive preserve of the Laboratory Specialist is now becoming part of the armamentarium of Primary Care! Get up to speed with the latest developments!

Encouraged no doubt by SARS-CoV-2 and the prospect of a "Winter of Discontent" manifested by the return of the Influenza virus, Air-Cleaning and Filtration Systems are being exhibited as part of the effort to minimize spread of infectious disease. Similarly, Anti-Microbial and Self-Disinfecting surfaces and materials are on display. The safe disposal of clinical waste for large and small medical institutions sees different solutions on offer. Again, COVID has seen the need for various systems of High Flow Oxygen, and these can be seen along with a variety of oxygen concentrators which might be of relevance to front-line military medical facilities. Personal Protective Equipment, commencing with the basic surgical face mask and culminating in the highest standard of biological protection can be reviewed on various exhibit stands – again the MEDICA website can be consulted to identify specific exhibitors and stands.

The Sports Medicine and Physiotherapy Communities have much to see at MEDICA. This ranges from adhesive sports tape to very sophisticated rehabilitation devices. The use of Ultrasound as a diagnostic tool has been well documented over the years and Military as well as Emergency Medicine can testify to the power of FAST and eFAST in identification of intrabdominal fluid, pneumothorax, pericardial effusion etc in victims of trauma. The exhibition reveals that these

machines are becoming smaller and smaller, with projection of images onto tablets and mobile phones. Again, what started out as a Hospital Device is gradually being adapted for use in General Practice / Primary Care. But from the therapeutic perspective Ultrasound Machines are becoming more compact also. But therapies are not confined to Ultrasound. Several exhibitors are displaying therapeutic interventions based on Pulsed Electro-Magnetic Field Stimulation as well as Temperature Controlled High Energy Adjustable Laser Therapy. Some such devices are available also for home use and are being marketed for relief of pain in both acute and chronic conditions. An explanation of the science behind such therapies justifies a visit to the relevant stand.

The world of monitors is well represented from the “simple” wrist BP monitor to the multi-modal machines seen in an ICU. Defibrillators are widely exhibited, but one novel device (new to me at any rate!) is the “Automatic Ambu Bag”.

With haemorrhage representing the greatest cause of battlefield mortality, there are a range of haemorrhage control dressings, devices including tourniquets and those for use on junctional haemorrhage control as well as pelvic binders, being exhibited. A variety of splints can be seen, both for civilian and military use. Long evacuation times can predispose to hypothermia, and there are a range of devices to counter and prevent hypothermia. Where chemical contamination has occurred, copious volumes of water have traditionally been used to decontaminate the area, but an alternative emergency rinsing solution is being exhibited at the Trade Fair.

Sleep Apnoea and Snoring have challenged the world of medical science to come up with some novel solutions – the CPAP, although effective, has its detractors. Various other devices are also on display, including a non-invasive device to detect obstructive sleep-apnoea in 10 minutes, as well as devices designed to prevent compromise of the upper airway. One novel approach is the release of a scent at critical times which results in a ‘sniffing’ rather than a ‘snoring’ response!

As I rambled through a review of the various exhibitors, my curiosity and attention were drawn to some items as follows:

Zhuhai Keyu Biological Engineering (Hall 6, Stand G50) who were promoting an Automated Faeces Analyser. Accepting that a clue as to what aspect of the Faeces was being analysed must lie in the “Biological” element of the Company’s title, this product is worth of further investigation. Does it have anything to offer in the Disaster / Austere Medical Environment?

Youkey Germany GmbH (Hall 9, Stand E22) present a hand-held wireless Ultrasound Probe with interchangeable probes for different settings. While not necessarily unique at the exhibition, it certainly might be worth another look, particularly from the eFAST perspective of Military Medicine Trauma.

Xema Oy (Hall 3, Stand J41) are offering Aquascreen 5 Test Strips for semi-quantitative determination of total hardness, pH, nitrite, nitrate and chlorine of water. Again, could be particularly useful in the Disaster / Austere Medicine setting to check on water quality.

WeWoThom GmbH (Hall 15, Stand K22) offers its customers “a pain-free perspective on life.” Their product WeWoThom MP can be used as a pain-relieving therapy against many types of pain. It is a small high-frequency electrotherapy device designed for self-use either at home or while travelling. Might be worthy of further exploration particularly by those are beset by the ravages of time, or those who are anxious to resume sporting activity after injury as it also may support regeneration of tissue.

Wenzhou Boaking (Hall 6, Stand H64) have a LED, Mercury-Free Sphygmomanometer which might appeal to those who belong to the pre-digital generation and harken back to the traditional style sphygmomanometer which for years, along with the stethoscope, was the hallmark of the GP's surgery. Always room for a little sentiment in life!

WellBack System (Hall 5, Stand F33) offer a range of Postural Benches designed to promote flexibility to those suffering from backpain. The "Home" version is deemed to be suitable for those who want to keep their back in optimal condition. Might be worth a look by those seeking the secret of eternal youth (or at least pain-free old age)!

Unitekno Srl (Hall 9, Stand B15) have a series of products which use low-frequency electromagnetic field to stimulate tissue regeneration and high-frequency electromagnetic field for analgesia. Applications include sports injury, domestic injury, work-related injury, and age-related diseases. Might be useful to learn a little more here.

UBT Srl (Hall 15, Stand G32) introduce "Mammowave" – mammography without X-Rays. If you are like me and have not heard of the use of microwave imaging technology, you might like to learn more by visiting this stand. Similar technology, called "BrainWave" can be used to differentiate between haemorrhagic and ischaemic stroke.

TTC Medical Srl (Hall 15, Stand J32) introduces us to "Temnography TES" which uses microwave technology in a non-invasive manner to determine whether haemorrhage is the cause of an ongoing stroke event, thus enabling appropriate treatment. It is portable device which is placed on the patient's head and has potential application in the pre-hospital as well as emergency room settings.

Trister LLC (Hall 11, Stand E04) offer a Mini Percussion Massager for those who appreciate a little pampering or who have stiff body muscles. The same Company also are exhibiting an Advanced Blood Pressure Monitor with ECG – worth further exploration!

Telea Electronic Engineering Srl (Hall 10, Stand A20) have harnessed Quantum Molecular Resonance (QMR) as a unique and innovative technology in a fashion that, while acting on biological tissue, does not induce a thermal rise in the tissue. It has applications in surgery, physiotherapy and aesthetic medicine. While QMR Centres are widespread throughout Italy, it may be worth studying this novel technology for the future.

Tecnica Scientifica Service Srl (Hall 15, Stand 32-35) harnesses Pulsed Electro-Magnetic Field Technology in the management of post operation pain and inflammation. The product, AlgoCare works through a non-continuous pulsed electromagnetic field generating a slight electric current at cellular level. AlgoCare, it is claimed, acts on the immune system blocking the production of pro-inflammatory molecules and favouring inflammatory resolution. Surely this warrants further exploration and investigation.

Tarabios Saglik Teknolojileri AS (Hall 12, Stand E53) offer a solution to the multiple trips to Clinics or Hospital for PT/INR monitoring when on Warfarin. Lab equivalent results can be produced within one minute following either Point of Care Testing or Patient Self-Testing with one drop of blood. Might be beneficial in austere/disaster environments.

Surginus Co Ltd (Hall 7a, Stand D20) is displaying a novel skin-suture system that does not involve needles. It can save time and minimize both infection and subsequent scarring. Curious? Why not check it out for yourself?

Somnics GmbH (Hall 11, Stand B26) offers a novel treatment for obstructive sleep apnoea patients (iNAP) which doesn't require a mask, is discreet and portable. Will it cure snoring? My spouse has instructed me to find out!

Sky Labs Inc (Hall 12, Stand D33) have produced a wearable ring (CART) for your finger which, using photoplethysmography and the appropriate App, can measure heart rate, identify Atrial Fibrillation and electrocardiogram signals to offer supplementary information. While this ring is not a diamond, it could be even more valuable!

Shenzken Ultra-Diagnostics Biotec Co.Ltd (Hall 17, Stand A51-5) are displaying a compact and portable coagulation analyzer (UD-C100) which can give results in as little as two minutes, suitable for bedside or outdoor use.

Shenzken Luckcome Technology Co.Ltd (Hall17, Stand E02) are exhibiting a non-invasive and immediate detection of skin bilirubin level in neonates.

Shenzken D-Health Medical Technology Co.Ltd (Hall 17, Stand D34-1) have a product which can be used to screen for, or monitor Sleep Apnoea. It takes the form of a wrist-worn pulse oximeter.

Shenzken Bestman Instrument Co.Ltd (Hall 11, Stand H14) exhibit vascular dopplers and vein finders which could be of benefit when trying to gain IV access.

Sefam SAS (Hall 11, Stand F14) supply equipment for the diagnosis and treatment of Sleep Apnoea. Regarding the former, monitoring of respiratory efforts, body position, SpO₂, heart rate and pulse wave data are duly analysed. This monitoring can be combined with treatment by positive airway pressure.

Qingdao Medical Science and Technology Co.Ltd (Hall 16, Stand H71) are exhibiting some of the smallest, portable and battery oxygen concentrators. Would these have any application in the Disaster/Military Medicine environments? A visit to the stand could be very worthwhile.

Prevor SARL (Hall 5, Stand L30) is involved in the area of chemical decontamination following chemical spillage. They have a range of products including educational courses and booklets as well as specific neutralizing agents for workplace and personal contamination. Very worthwhile visit to those involved in Occupational Health in the chemical industries.

Philmedi Co.Ltd (Hall16, Stand G64) produce "Gcheck" – a Date-Rape Drug Test sticker kit.

AmCad BioMed Corporation (Hall 11, Stand B26) present AmCad, a non-invasive method of laser guided ultrasound scanning of pharyngeal airway resulting in risk evaluation of obstructive sleep apnoea that takes approximately 10 minutes. AmCad can also be used to monitor the efficiency of any proposed therapeutic intervention.

Angionica sp.z o.o. (Hall 10, Stand H06) are exhibiting a device to determine Flow Mediated Skin Fluorescence. By this means a non-invasive evaluation of the microcirculation, as well as metabolic regulation can be achieved. Although quite technical, this device has great potential and further exploration of the Stand could be very rewarding.

Appscents Medical Ltd (Hall 16, Stand J20) offer a novel approach to solving sleep apnoea. The solution is a contactless respiratory therapy and involves the release of a scent to stimulate a sniffing response at critical times during the sleep pattern. Well worth a visit to this stand!

B-Cure Laser Laser Inc. (Hall 16, Stand J38) is demonstrating a “safe and non-invasive treatment” which can be used at home to ease pain. It is based on the use of Low-Level Laser Technology. Multiple applications in the household!

Beurer GmbH (Hall 10, Stand D20) have a device which is designed to treat insect bites and stings, thereby helping to prevent itching and swelling, through the application of heat. Has it got a role in relieving the chronic itch of eczema? Might be worth a visit!

Bionet Co.Ltd (Hall 9, Stand B04) are demonstrating a small wireless pocket ultrasound scanner with multiple applications. Could make a very practical Christmas present! Worthy of further exploration.

Birthtech (Hall 14, Stand D65) are exhibiting the “Premie Test” – an automated light-based non-invasive device which can reveal the gestational age as well as comment on the nutritional status of the newborn. Particularly valuable where deficient pre-natal records.

BrainsWay Inc (Hall 16, Stand J38) feature an interesting and novel therapeutic technology which relies on Deep Transcranial Magnetic Stimulation for the treatment of depression, obsessive-compulsive disorders and smoking addiction. It is non-invasive and unlike ECT does not require anaesthesia. This device could significantly add to the therapeutic armamentarium for mental health issues with resistant depression and/or depression with anxiety. Well worth further exploration.

Chrisofix AG (Hall 5, Stand C25) produce various orthoses for optimal immobilisation. Traditionally, splinting the chest following fractured ribs was contraindicated because of the potential for infection caused by decreased movement of the chest wall. However, Chrisofixrib splints decrease the movement of the fractured ribs, thus decreasing the pain of breathing and promoting lung ventilation. They are waterproof thus facilitating personal hygiene by showering etc. Do they work? Visit the stand.

Eckolight S.p.a. (Hall 9, Stand D73) have developed EchoStation, a radiation free device for calculating Bone Mineral Density. A portable version is also available (Echos).

Gamastech SRL (Hall 5, Stand F05) – might be worth exploring their needle-free injection system.

Grace Imaging Inc (Hall 15, Stand F0) is developing a wearable device to detect Lactic Acid level in human sweat which could be used to monitor fatigue. An interesting development.

Huwant Corp. (Hall 16, Stand A60) “Breath On” is a device to help improve the user’s lung activity. This can improve athletic performance and as part of Cardiopulmonary Rehabilitation.

Industrial Technology Research Institute (Hall 7, Stand C22-3) display a Vein Finder (Vein Sharp) which uses near-infrared rays to detect superficial veins. It projects the vein image onto the skin. Particularly useful in the obese patient. Worth a further look!

Inspir Labs Ltd (Hall 5, Stand L13) have developed the Lumena NIV Mask which uses a negative pressure gradient to minimize “escape” into the environment from the patient, thus decreasing the potential for contamination of health care workers in the vicinity.

IntegriMedical LLC (Hall 16, Stand D21-4) offer another needle-free injection device.

Kamedi GmbH (Hall 15, Stand K16) offers another device for tackling the itch and pain of insect bites through the application of heat. This time you plug it into your phone!

Kuartismed Medikal (Hall 12, Stand E53) display a device (Premades) which monitors non-invasively the feeding ability of new-born and pre-term delivery babies. It focuses on the coordination of the baby's sucking, swallowing and breathing abilities.

M2S Co.Ltd (Hall 16, Stand F64) are exhibiting and promoting the "VROR Eye Dr" a VR/AR device which examines the eye's visual acuity, contrast sensitivity, colour vision, extraocular muscle activity, visual fields. An interesting development worth a second look!

Manus Neurodynamica Ltd (Hall 16, Stand H48) are exhibiting the NeuroMotor Pen, a digital biomarker for the differential diagnosis of Parkinson's Disease. This is a potential alternative to the expensive DaTSCAN. Worthy of further exploration.

Medicore Co Ltd (Hall12, Stand A23) are exhibiting a non-invasive device (MAX PULSE) for assessing overall Cardiovascular and Autonomic Nervous System Function. This Stand is certainly worth a visit whether you are interested in screening in Occupational Health or have more general interests.

Medinet SRL (Hall 5, Stand H06) among their exhibits include a hand-held ultrasound device for diagnosis of sinus pathologies. Interesting and I hadn't come across this device before.

Microlife AG (Hall 11, Stand B58) are demonstrating the WatchBP 03 Ambulator blood pressure monitor which has a silent mode option for quiet measurements. It also include a Pill button.

Neurive Co Ltd (Hall 16, Stand D60) demonstrate "Soricle" and "Healon" which through stimulation of the Vagus Nerve promote brain plasticity and can have a positive influence on the treatment of several degenerative brain diseases. This is most definitely "a must stop here" point to learn more!

Onalabs Inno-Hub (Hall 15, Stand L02) produces a device of potential interest to athletes which provides for continuous measurement of lactate in the sweat.

Oscimed SA (Hall 5, Stand F21) produces oral mouldings – Somnofit and Somnolis – which are designed to reduce snoring by advancing the mandible while sleeping. Might be worth a visit if you value a quiet night!

Please note that this is only a short overview and there are many more exhibitors with exciting products: <https://www.medica.de/>