

International CBRNE Institute
CBRN – E-RKC
www.ici-belgium.be

NEWSLETTER December 2020



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1. Statement 2020

The year 2020 was as productive as 2019 in term of the visibility of our institution; in fact, no less than 30 countries were represented by delegates during this year either through their participation in our conferences or for having attended our courses. The focus this year has been set on the new courses given to emergency department staff of our hospitals on the one hand and on increasing our international visibility in the field of humanitarian demining and robotics on the other hand. Our main activities in 2019 were summarized in our Newsletter of December 2019: in this one, we focus on the events in 2020:

The International CBRNE Institute has been nominated as:

“Best Risk Mitigation NPO 2020”

“The International CBRNE Institute has demonstrated excellence, commitment, dedication” and is proud of this nomination from the EU Business News Magazine.

A. ICI activities

This year 2020 was marked by the appearance of this Covid-19 coronavirus pandemic. After a promising start with the continuation of courses for emergency physicians and the conference on February 28, our activities in plenary sessions were stopped because of total confinement in Belgium until June and, then, after a brief lull during the summer leave period, the second wave and the re-confinement still in progress. However, this period of calm allowed us on the one hand to evaluate our courses for emergency physicians via a very positive feedback from the medical services and firefighters concerning CCS (Contamination Control Station) procedures and methods of dressing and undressing in contaminated environments applied by these first responders as part of their work related to Covid-19 and on the other hand to promote the Institute and develop our

network in anticipation of new courses and requested training which will apply as soon as the health situation will allow.

The arrival of a Covid-19 vaccine and the return to normalcy will allow us to materialize our new partnerships (police academy, RPA, firefighters, universities, hospitals both nationally and internationally (Switzerland, France, UK, .)

27 January and 17 February: course for urgentists (Level 2)

28 February: The conference on "CBRNE RISKS and BIO-CONTAMINATIONS" brought together no less than 30 experts from different backgrounds and was a success given the interest of the presentations.

Below, the speakers at this conference:

- Brigadier General (ret'd) Galatas Ioannis [John], MD, MSc, MC (Army) editor of the renowned monthly letter C2BRNE DIARY, P / O Yvan Baudoin: *"CBRN crisis and their risks in 2020"*
- Colonel (ret'd) Claude Lefebvre, expert consultant in bio-protection, CBRN defense technologies and crisis management: *"Biological agents and their epidemic / endemic risks"*
- Dr Frank Van Trimont, Anesthesiologist and Emergency Physicist, Director of the disaster certificate course at the Free University of Brussels, Secretary General of the European Council for Disaster Medicine, Reserve Officer of the Belgian Army. *"Counter infections linked to the coronavirus"*.
- Colonel (ret'd) Jean Marsia, President of the European Defense Society (www.seurod.eu): *"The necessary strengthening of European defense capabilities"*

B. ICI/ER-KC (Explosives/Robotic)

5-8 February: Participation to the 23rd International Meeting of Mine action – National Program Directors and United Nations Advisers in Geneva.

15-17 October: IMEKO TC17, organized the symposium IEEE- ISMCR'2020 in BUDAPEST, due to the COVID, this conference was VIDEO-held.

A special session was devoted to the CBRN and chaired by Dr Ir Geert De Cubber (Royal Military Academy) with the participation of ICI members. Let us also note that Dr de Cubber is now official representative of Belgium at IMEKO-TC17.

The topics:

Claude Lefebvre and *Yvan Baudoin*

New technologies increasingly efficient in the areas of CBRNE alert detection, identification, protection and prophylactic treatments (to be read on our site ICI)

Frank Van Trimont

Use of modeling, drones included, for teaching disaster medicine

Giuseppe Sutura, *Andrea Borgese*, *Dario Calogero Guastella*, *Luciano Cantelli* and *Giovanni Muscato*

A Multi-Robot System for Thermal Vision Inspection

Geert De Cubber, Rihab Lahouli, Daniela Doroftei and Rob Haelterman

Distributed coverage optimization for a fleet of unmanned maritime systems for a maritime patrol and surveillance application

24-26 august 2020: the 23rd Symposium CLAWAR'2020 took place in Moscow on: www.clawar.org: (VIDEO conference): **Key Note ICI (Armada-CSIC, Y Baudoin) to be read on [www.ici-belgium.be/past events](http://www.ici-belgium.be/past_events)**

C. ICI/CBRN-KC

If there was a recent radiological incident one might speculate that 2020 was the perfect CBRNE year ever! We had a combination of “C” and “E” in Beirut with the mega-explosion that teared into have the capital of Lebanon. We also had a “B” disguised as a Covid-19 pandemic. On top of these calamities, we also experience another terrorism wave both in France and Austria.

In the past we used to remark that healthcare personnel were not so well prepared for “C” and “R” mass casualties, but higher scores were expected with “B” threats mainly because this is what doctors and nurses do worldwide. Well, all assumptions were proved wrong mainly because the cinematographic nature of the pandemic was not taken in consideration and both planners and governments were not able to think big or as big as the problem is despite the heroic efforts of the personnel working in the healthcare sector. The outrage is that many gaps identified during the first wave of the pandemic were not managed in a proper way and the much aggressive and catastrophic second wave is progressively flattening societies and economies around the globe.

Below is a short outline of the things that went wrong:

- ✓ Hospitals' ICU beds
- ✓ Dedicated Covid hospitals
- ✓ Lack of specialized critical ICU equipment (e.g., respirators)
- ✓ Face masks and personal protective equipment
- ✓ Hospital gasses – especially oxygen
- ✓ Specialized personnel
- ✓ Volunteers – requisition of private medical sectors; medical students; dentists
- ✓ Teaching other medical specialists with some Covid-19 basics

Amateur crisis management supported with Internet info chaos and prevalence of scientific facts over common logic – i.e., what is the point of the 2m distance to counter a virus that is airborne?

Lack of knowledge of the most basic rule in crisis management: respond based on what people will actually do; not on what they should do. Social distancing is a fine example of failure of measures ordered by governments and civil protection authorities in many parts of the world. There is no doubt that a Pandemic is equivalent to “B” in CBRN. The pathogen in bioterrorism does not have to be as aggressive as smallpox or Ebola to harm the entire planet. Perhaps Category “A” pathogens to act faster or be more lethal. But approx. 60 million confirmed cases and almost 2 mil deaths are not enough?

The only good thing is the global response of human brains regarding both innovative solutions to the above problems identified and vaccines based on old but also bright new scientific approaches (e.g., mRNA). A process usually requiring years to develop was shortened to months and not a single but many vaccines are now candidates to circulate in the global market.

The war is not over and most probably will not be over until mid-2022 when acceptable levels of vaccination have been sustained in big parts of the world. Therefore, it is important to reorganize, update our plans and adapt our procedures to the peculiarities of the virus.

For 2021, the **CBRN Knowledge Center** envisions certain open discussions among CBRN and medical experts targeting two main issues: the personal protective gear used in ICUs and the training of healthcare personnel (all levels) on donning/doffing SOPs by adapting CBRN protocols to civilian needs introducing a security culture in the healthcare sector. These are two topics that we know better than our healthcare colleagues and by working together we can assist them in their heroic battle against SARS-CoV-2. Perhaps, the ongoing pandemic might deny a conference with physical presence but there is always the possibility of webinars and cyber-conferences.

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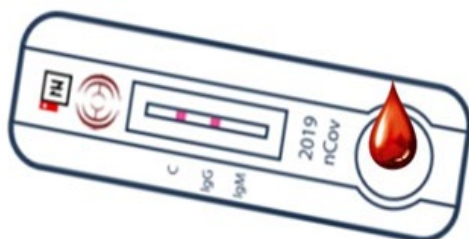
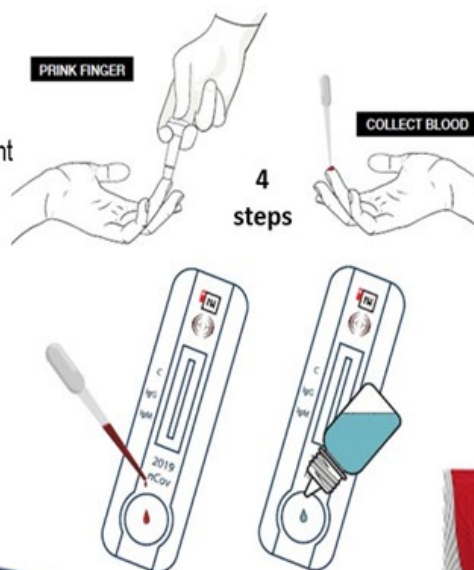
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As part of its many activities (conferences, symposium, workshops, courses, etc.) ICI constantly tries to stay at the forefront of the materials made available to trainees and visitors. This could not be a reality without the support of our sponsors (HZS, Cristanini, Blücher...) whom we thank for their permanent support for our activities.



HOTZONE SOLUTIONS THE NEW COVID - 19 RAPID TEST KIT available: please read <https://hotzonesolutions.org/wp-content/uploads/2020/11/Flyer-5NOV2020.pdf>

- **Sensitivity** of ZEKMED IgG/IgM Rapid Test Cassette is 97% compared with PCR results, and the relative overall **specificity** of the Test is 99.9 % compared with PCR results.
- Fast Results **<15 minutes**
- Simple operation without any equipment
- Very low price
- CE-IVD Certified
- FDA & Health Canada approved
- ISO 13485:2016 (medical devices)
- 100% compliance with UK Medicines & Healthcare Products Regulatory Agency Guidelines
- **Manufactured in Switzerland**



- A. The firm **CRISTANINI** Spa, provided us with its new inflatable decontamination tent which by its ease of implementation and its operational qualities will certainly be one of the cutting-edge tools sought in the search for solutions for the general public for the fight against Covid-19.



2. Statement 2021 Planning 2021: due to the COVID 19 threat, dates of events may be adapted

- **30Aug-03September 2021. The 10nd International (IMEKO TC17-ICI)Workshop on Virtual Reality in Robotics, Measurement, Prevention, Protection and Management of CBRNE risks (VRISE 2021) will become a special Session TC17 during the IMEKO Congress in Japan (Yokohama) will follow the successful 9th IARP-RISE' 2019 (Risky Intervention-Environmental surveillance) held at ICI and it is aiming to gather high**

quality original contributions in the CBRNE field and associated CBRNE measurements, prevention, protection and management with the final goal of assessing the most recent developments in this utmost domain of science and technology. The workshop scope covers a broad spectrum ranging from advanced conceptual and virtual design and methodology, sensors, actuators, instrumentation, and real-time control algorithms to innovative robotics, mobile (ground/aerial/undersea) robotics, personal and collective protection, multilevel rescue operations and management applications. (visit: www.ici-belgium/event). **Note that, due to the COVID19, the RISE WS 2020 had been cancelled.**

- **Spring 2021: 17th International symposium on Humanitarian Mine Actions:** this has been delayed and would be held in VODICE (Sibenik county). We invite the experts EOD/IED to attend this symposium organised by our associated CTRO company (www.ctro.hr): contact Sanja Vakula (Sanja.vakula@ctro.hr)
- **A IMEKO congress is foreseen in Yokohama: more information on www.imeko.org**

4. European Proposals (H2020)

Two proposals have been prepared, with the continuous on-line cooperation of CSIC (Spain) and BRIMATECH (Austria).

Members of ICI could be solicited to actively contribute after evaluation-funding (January 2021)

1. INTEGRATED for RESPONDERS TECHNOLOGICAL CAPABILITIES: IRTEC



Funding scheme: Research and Innovation Actions - Call identifier: SU-DRS02-2018-2019-2020
Work Programme: Sub-topic 2018-2019-2020

This proposal has been introduced in August 2020: evaluation expected in January 2021.

Coordination: Yvan Baudoin as representing HOTZONESOLUTIONS/ICI

IRTEC aims to propose novel solutions for the protection of first responders against multiple and unexpected dangers, specifically by providing cost-effective tools for natural and man-made disasters, threat assessment and investigation. The proposed approach will provide: (i) a toolbox of promising technologies for surveillance, detection and intervention; (ii) good practices in detection technology as foundation to harmonise and standardise detection capabilities; (iii) efficient counter-risks actions and medical support; (iv) a Disaster Management Action Plan-Decision Support System (DMAP), an operational tool that will support the decision makers and the emergency workers through the management process of a threat in an efficient and effective way; (v) training (in particular to the control of UGV and UAV) and SOPs related to sampling and detection in realistic conditions to minimise potential security risks. The proposal combines research (1) from security experts to better identify current threats, (2) from scientists to survey, improve and/or develop ad-hoc new technologies, (3) to integrate, when appropriated, detectors on board robots (UAV, UGV), possibly cooperating in 'for-first-responders-risky environments and (4) to train and organise periodic and a final demonstration to validate the proposed solutions (DMAP in particular) with users. The involvement of potential users (first responders organisations, including emergency, civil protections, police, health experts, and equipment providers that will be in charge of the exploitation of the developed tools) will also ensure that proposed solutions fit their requirements and operational constraints and that they will be implemented. The impact of the proposal will be ensured by the release of the DMAP-DSS, the assessment and further development of some already validated technologies, and the achievement of technological breakthrough in key areas.

2. Monitoring Technology Enhancing the Counteraction Against Crime and Terrorism (MEERCAT)"

This proposal has been introduced in August 2020.

Coordination: UNIWERSYTET LODZKI (Poland).

Participation of ICI and Belgian Police Academy of the Province Hainaut

Topic SU-FCT02-2018-2019-2020

The MEERCAT project is an international initiative supporting the fight against crime and terrorism by enhancing the operational capabilities of LEA Tactical Units in Real-time by detection of chemical and explosives threats remotely from the distance due to development of the innovative autonomous device. The MEERCAT project will create an innovative platform that combines various technologies improving LEA's capabilities like: • specialized innovative high dynamic Infrared detectors based on a customized and newly designed Quantum Well Infrared Photodetectors (QWIP) of semiconductor structures supported by a Readout Integrated Circuit (ROIC) and operated with an Artificial Intelligence (AI) driven data processing and • analysis engine including Decision Support Sub-System. Everything will be integrated on the Unmanned Ground Vehicle – Unmanned Aerial Vehicle (UGV UAV) autonomous vessel. To enhance Navigation and Command & Control of UGV-UAV as well as to extend human capabilities and "presence" to remote locations and support tactical situations Augmented Reality technology (AR) will be incorporated. The ambition of the MEERCAT project is to develop a completely innovative Infra-Red based detection solution able to perform analysis remotely, from a distance of up to several meters, without any physical contact with potentially hazardous substances. In conjunction with Artificial Intelligence powered by Edge computing technology, the analyses of unknown substances will be conducted in only a few seconds, which will significantly reduce the time spent in a potentially dangerous zone. MEERCAT outcomes will protect officers and reduce the risk of losing human or animal life with the help of autonomous, hybrid propulsion vehicles that can enter suspicious sites or crime scenes being able to investigate potentially hazardous or explosive materials in a safe and near real-time manner

