

17th MEDICAL BIODEFENSE CONFERENCE

28 Sep - 1 Oct 2021, Munich, Germany



*Honour the Past,
Embrace the Future*

SCIENTIFIC PROGRAM & ABSTRACTS



organized by
Bundeswehr Institute of Microbiology

BP5**[Contribution withdrawn]****BP6****Experience in the participation of the CBRN Defense Systems Department of the INTA-La Marañosa Campus (Spain) in projects of the European Commission ISF-P: BULLSEYE and MALL-CBRN**

María V. Ortega, Juan M. Moreno, Olga Bassy, and Juan C. Cabria

1- INTA, CBRN, San Martín de la Vega, ESP

The CBRN Defense Systems Department of the INTA-La Marañosa Campus (Spain) currently participates in two European consortia for the calls of the Internal Security Fund-Police (ISF-P) instrument of the European Commission: the BULLSEYE and MALL-CBRN projects. The first of them aims to improve the preparation and response of European emergency services to chemical and biological incidents, while the second aims to create a protection system against CBRN and explosives incidents in large shopping malls. In both, the methodology is based on gaps analysis, and it is also supported by state of the art research, through interviews, meetings with experts, and the organization of workshops and training exercises. The main expected results in relation to the BULLSEYE is the provision of highly trained first responders who can then serve as trainers for their respective teams in their country of origin. In relation to the MALL-CBRN, one of the most important results will be the development of recommendations to improve prevention and response to these types of incidents, including those related to food.

CP1**Agent-based simulation as an effective tool for COVID-19 anti-epidemic policy formation**Dmytro Chumachenko¹, Ievgen Meniailov¹, Kseniia Bazilevych¹, and Tetyana Chumachenko²*1- National Aerospace University Kharkiv Aviation Institute, Mathematical Modelling and Artificial Intelligence, Kharkiv, Ukraine; 2- Kharkiv National Medical University, Epidemiology, Kharkiv, Ukraine*

The COVID-19 pandemic has become a problem for health systems and predicting the dynamics of cases has become an indispensable tool for calculating the necessary capacity of medical institutions, the supply of personal protective equipment, medicines,

ventilators, and the like. Mathematical modeling tools can be an effective solution to control the epidemic. With the help of modeling, it is possible to identify the factors that most affect the dynamics of the epidemic process in a certain area, and to regulate them. We hypothesize that agent-based approach will reveal the significance of factors affecting the epidemic process, such as quarantine restrictions, isolation of patients, the use of masks and antiseptics, adherence to vaccination, over current models that only allow to forecast the morbidity. We present our results of an agent-based model which is a set of interacting agents with different characteristics (age, sex, quantity of contacts per day, etc.) and different states (Susceptible, Infected, Exposed, Recovered, Dead). Transitions between states are implemented probabilistically and are determined experimentally based on statistics on the COVID-19 incidence. We used data on COVID-19 morbidity in Ukraine provided by Center for Public Health of Ministry of Health of Ukraine. We used C# programming language for program realization. The developed agent-based model of COVID-19 allows calculating the predicted incidence of COVID-19 in the regions of Ukraine based on real statistical data. The advantage of the approach is the ability to identify factors affecting the dynamics of the incidence of COVID-19, in contrast to classical and neural network models. While other models only allow constructing predictive incidence rates, the extended model makes it possible to conduct experiments and determine the leading driving forces of the epidemic process. This is the basis for developing optimal management decisions to help minimize the risk and increase the effectiveness of the epidemic response. The accuracy of predictions obtained using our model is 97.6%, which is higher than the compartment models widely used for modeling COVID-19. Experiments provided with agent-based model showed that the most effective measure for susceptible population to reduce the epidemic incidence of COVID-19 is contact tracking with isolation of patients and contact persons. At the same time, there is no need for complete isolation of the population.

CP2**Biological Threats and Special Pathogens - Why is a Quality Management beneficial?**Sophia Brünschwitz and Janine Kleymann-Hilmes
Robert Koch-Institut, ZV 6.2 Quality Management, Berlin, Germany

The Robert Koch Institute (RKI) is Germany's central governmental scientific institution in safeguarding public health and infection protection

Capozzi, L	EP4,	Della Rovere, I	EP4	Elfadul, M	NP11
	EP6	Dematheis, F	EP2,	Elkhidir, I	DP7,
Carette, O	DP8		EP3		EP14
Carniel, E	H3	Demeure, C	H3	Ellison, D	P7,
Cauchemez, S	MP9	Derkach, L	NP10		PP1
Cavalli, M	EP7	Derschum, H	JP5	Elschner, M	E4
Cerreto, G	EP7	Derz, W	JP1	Elsharabassy, M	F2
Çetin, M	NP4	Diehl, M	D3	Elsinghorst, P	JP1
Chan, Y	IP8	Dierkes, J	BP4	Elsner, M	I4,
Chanturia, G	H7	Dilik, Z	NP4		IP13
Chase, K	E5	Dobler, G	DP3,	Elßner, T	J4
Chen, L	D6		DP4,	Emslander, Q	P6
Cheremiskina, A	K6		DP5,	Enan, K	DP6,
Chitadze, N	NP7		F4,		DP7,
Chitimia-Dobler, L	DP3,		MP4		EP14
	DP4	Dobrzykowski, L	O3	Endt, K	M2
Chong, Y	IP8	Döhla, C	BP3,	Erber, J	IP1,
Christian, L	CP7		BP4		IP3
Christiany, D	EP2	Döhla, M	BP3,	Erdal, G	NP4
Christner, M	F1		BP4	Eschmann, C	IP9
Chumachenko, D	CP1	Dongxin Hu, C	J2	Essbauer, S	D5,
Chumachenko, T	CP1	Dorner, B	J1,		N6,
Ciammaruconi, A	MP3		J4		NP1,
Cipolletta, D	EP4	Dorner, D	J5		NP2
Clokie, M	O5,	Dorner, M	J4,	Exner, M	BP3
	P1		J5	Faggioni, G	EP2,
Cochrane, L	G4,	Doumbia, Z	N2		EP7,
	IP15	Drechsel, O	F1		MP3
Colquhoun, D	E5	Dreesman, J	D4,	Fain, V	EP7
Comtet, L	G1		DP1	Fasanella, A	EP6
Connor, J	M9	Drehmann, M	DP4	Fasemore, A	C7,
Cooper, H	NP8	Dresler, J	J3		EP8
Çöven, F	NP4	Drewes, S	D5	Fels, F	C5
Cubeta, R	B3,	Dron, I	MP7	Ferjani, A	NP12
	BP1	Du, J	O2	Ferjani, M	P4
Cunningham, S	G7	Duell, E	MP6	Ferla, S	MP2
d'Andrea, S	MP2	Dunne, M	O2	Fernández-Pedrero, R	EP5
d'Angelo, P	EP7	Dupke, S	EP10,	Fernández, J	EP5
Dadvisard, M	EP2		F1	Fibinger, M	JP4
Dähner, F	O3	Durácová, M	JP2,	Ficks, A	JP4
Damdin, O	NP9		JP3	Filippov, A	P7,
Damdindorj, T	NP9	Duraffour, S	NP14		PP1,
Dammermann, W	HP1	Dywicki, J	N5,		PP4
Dandekar, T	C7,		NP2	Fillo, S	EP7,
	EP8	Dzhioev, Y	PP7		MP3
Dara, C	N2	Eckstein, S	D3,	Fischer, R	IP16
Darebna, P	J3		N3,	Forsman, M	E5,
Dasenbrock, C	P5,		P4		EP2
	PP3	Ehling-Schulz, M	EP13	Förster, R	MP6
Davoust, B	DP8,	Ehmann, R	D3,	Förstner, K	C7,
	G1		I5,		EP8
Dawert, T	KP5		M8	Fortunato, A	EP7
de Caluwé, L	NP14	Ehrhardt, C	D5,	Fortwengel, N	JP5
De Santis, R	EP7,		NP1	Francesconi, S	I6
	I5,	Eickhoff, B	IP6	Franchini, V	EP7
	MP3	Eiden, M	E6	Frangoulidis, D	C2,
Del Olmo, J	EP1	El Hussein, A	DP7,		C4,
Del Sambro, L	EP6		EP14		C5,