



The SARS CoV-2 pandemic has confirmed the importance of preliminary screening of the respiratory diseases, as they are highly contagious and easily transmitted. Airborne viruses can be transmitted within liquid droplets or aerosolized particles that are released when a person sneezes, coughs, or speaks. Droplets are bigger (20 μm), and consequently tend to be spread short distances before they fall down due to the gravity. Aerosolized particles (less than 5 μm) remain airborne, and can persist for long periods of time and can better reach the lower respiratory tract.



The SARS CoV-2 pandemic also demonstrated how easily different healthcare systems can be outdated and revealed the dimness behind worldwide healthcare systems, reflecting financial, personnel and infrastructure deficiencies. STAMINA project develops solutions to support preparedness and response to a

pandemic crisis, and provide appropriate tools to deal with complex decisions at operational, tactical and strategic level for decision makers. An essential element in this effort is the capacity to rapidly control data, make real-time realistic predictions, and make the public opinion a partner in decisions, obtaining a more coordinated effort between countries in the EU and worldwide.

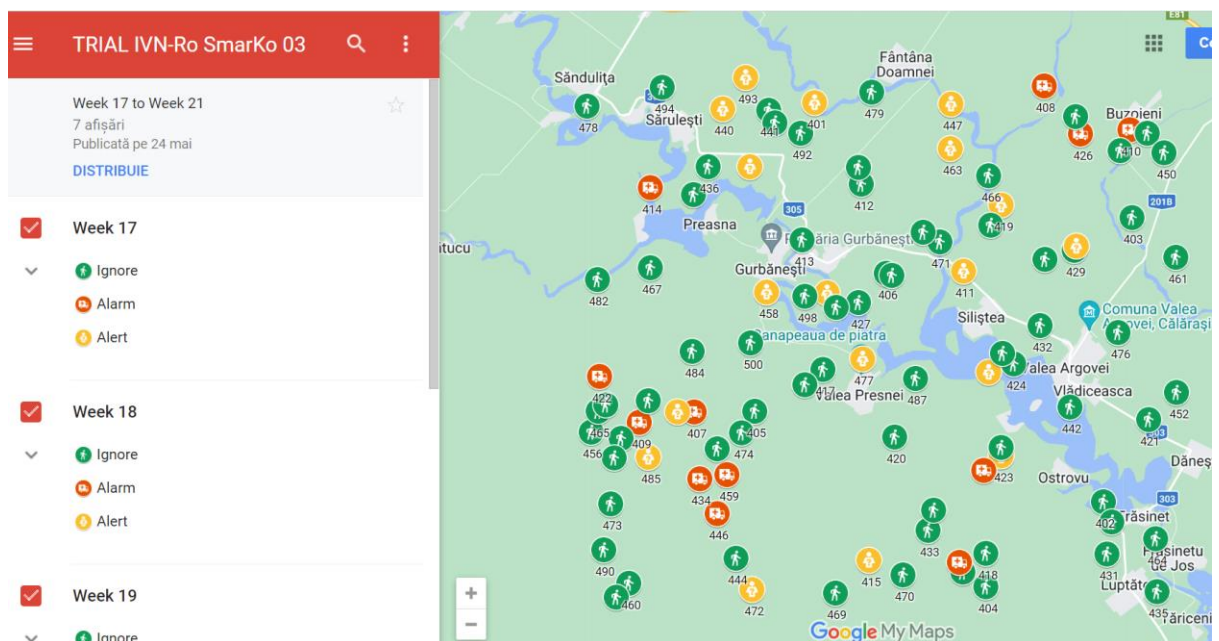
Stefan S Nicolau Institute of Virology (IVN) from Romania, the national planner in STAMINA project, is the National Centre for Reference of Influenza and Respiratory Viruses, and collaborates with WHO in surveillance of the epidemic course of the respiratory acute infections determined by influenza and other viruses with affinity for the respiratory tract in the south-east area of Romania including 8 districts. The results are sent toward the Ministry of Health, and corroborated with epidemic data processed using Epi-Info program. Records are drawn up and directed toward the National Health Ministry and toward WHO. The WHO surveillance case definition for influenza-like illness (ILI) is an acute respiratory infection with a measured fever of $\geq 38^{\circ}\text{C}$ and cough, with symptom onset within the last 10 days. Sentinel site data should be interpreted with caution since the number of sites reporting may vary between weeks. As of May 22, 2022 (week 20 / 2022) at national level in Romania, the total number of ILI were 39312, 1.2 times higher as compared to the same week of the last season (32357) www.cnscbt.ro/index.php/informari-saptamanale/gripa.



IVN establishes scientific connections by FluNet with other National Centres and transmits isolated strains of influenza viruses toward the International Centre of Influenza in London to be confirmed and deeply studied.

Through a review of STAMINA tools which cover all the steps of a pandemic management, IVN partner dealt with the solutions to this simulation protocol in the following ways:

- *SmarKo device*, a device that monitors patient's temperature, oxygen saturation and pulse, we began by using a previously designed simulation methodology, with an emulator which allows simulating the biological parameters.
- *Flu and Coronavirus Simulator (FACS)* allows the elaboration of pandemic models, and consequently we provided the necessary information to the tool owner.
- *Web and Social Media Analytics (WSMA)* is a search of social media networks (Reddit and Twitter) to identify pandemic / epidemic specific signs.
- *Data Management and Harmonization Tool (DMHT)* provides storage of user data, being available for other tools. For simulation, data were transmitted to the tool owner pandemic in different regions, taking into account the total population of the specific region, as well as the evolution of the epidemic assessing the total number of suspects, intubated and deceased patients. The *Information Protection Tool (IPT)* works in tandem with DMHT and ensures data security and authorized access to it.



- For the tool named *Early Warning System* (EWS) we transmitted the data set for training the Machine Learning module and the rules by which EWS transmits alert and alarm messages based on information from SmarKo, WSMA and FACS.
- *CrisisHub* is a very important tool in our opinion that collects, orders, analyzes and issues lists of actions and decisions, recommended to the decision makers in the management of a pandemic / epidemic. To date, we practised the simulation of a pandemic according to the scenario in our trial.
- For the *ENGAGE* tool, that allows the STAMINA platform to view several profiles of hospitals / infectious disease departments in various regions, we provided publicly available resources from our region.
- *CHARM* tool is based on information from ENGAGE, and to date we work on simulations for redistributing resources between different hospitals in the country.
- *Emergency Mapping Tool* (EMT) is an important tool that provides decision makers and authorized people a real-time and realistic picture of the essential and detailed information from the other tools; the decisions taken by the responsible factors in the field are based on this tool.
- *Preparedness Pandemic Training* (PPT) allows the production of various scenarios and activities during the pandemic and establishment of the optimal situations that can be applied when an ongoing pandemic is present, by testing the organizational and public health resources in different regions.



As a consequence, the paradigm of the SARS CoV-2 pandemic revealed a few ideas that are extremely important in STAMINA project implementation, and can associate with a better management of any potential pandemic. Firstly, the

digitization is a key point in pandemic management; secondly, inter-institutional coordination and collaboration is essential, while health education of the population must be a permanent objective in order to understand and accept health measures. Last, the need to reorganize the health information system on a modern basis, and standardize it for all levels of medical services is a must for all EU countries, in order to obtain a unitary and homogenous system of surveillance which can adapt quickly to possible epidemics / pandemics by ensuring flexible organizational and funding conditions and regulations.