

Against the Covid-19, use digital tools on a large scale
Press release from the French National Academy of Medicine
April 29, 2020

The Covid-19 epidemic has caught out our health system off guard, severely disrupted its functioning, saturated the hospitalization structures and contaminated the caregivers. In this context, even if they are not intended to replace doctors and caregivers because contact with patients remains essential, digital technologies can provide valuable support, especially in times of crisis, through multiple applications:

- mathematical models make it possible to identify the weak signals heralding an epidemic, to organize the response and to predict its evolution in order to reduce the containment measures;
- the use of the Internet and communication means preserves economic activity through distance working, all the more if digital coverage can be extended to the whole country;
- telemedicine, remote consultations and telediagnosis [1] maintain medical activity during the crisis until direct patient/doctor contact becomes possible again;
- mobile phones can be used to help with social distancing provided that individual's privacy is respected [2];
- virological and serological test automation and automatic analysis of chest CT images can shorten the time to diagnose Covid-19;
- the use of 3D printers should be expanded to include the manufacture of protective screens, masks, respirator tips, etc.;
- many tasks could in the future be entrusted to automata or robots in order to reduce the risks of caregivers exposure, such as dispensing drugs in EHPADs, disinfecting surfaces, waste management, virus scanning in waste water, etc.;
- sovereign national infrastructures for the collection and use of data must be created so that France and the European Union do not fully depend on the United States and China;
- research must be coordinated at the national level to avoid the proliferation of individual initiatives favoured by the emergency situation;
- in response to the scientific uncertainties caused by a new disease, artificial intelligence must allow a rapid analysis of large quantities of data in order to identify the characteristics of the infectious agent, and to develop leads for treatments or vaccines thanks to the sharing of information.

The National Academy of Medicine recommends:

- to encourage the development of digital technologies in health, by supporting public and private research;
- to provide the necessary resources to teams working on the mathematical modelling of epidemics in order to organise a way out of the crisis;
- to make automatic equipment available to healthcare personnel to reduce or eliminate their risk of contamination in the performance of certain tasks;
- to initiate a reflection on the use of digital technology in the response to future epidemics and in the organization of the health system in inter-epidemic periods;
- to ensure respect for ethical principles and the protection of personal data in the use of digital tools.

[1] Press release of the National Academy of Medicine "Telemedicine applied to cardiovascular and neuro-vascular diseases during containment", 27 April 2020.

[2] Press release of the National Academy of Medicine " The use of Smartphones to monitor the deconfinement of Covid-19 in France ", 22 April 2020.