

COVID-19: contribution to the inventory of French companies

In this particular health context, French Healthcare Association offers to contribute to the inventory of French players (members and non-members of the association) with proven solutions that can be implemented in the management of the epidemic and the management of patients.

Objective: to have a global vision of the French response that can be mobilized in France and abroad.

A specific meeting was organized on Friday March 13, 2020 during which companies were able to make themselves known, and information has been continuously collected since this date.

The list below is therefore intended to be enriched over time. Contact:
catherine.holue@frenchhealthcare.fr.

Companies are classified by « profession »:

- P. 1: Vaccine and treatment (under development)
- P. 2: Diagnostic tests / research
- P. 4: Medical devices
- P. 5: Medical imaging
- P. 6: Sterilization / disinfection / biodecontamination, hydroalcoholic solutions, masks
- P. 7: Management of hospital waste
- P. 8: Treatment / disinfection of hospital air
- P. 10: Room and insulation material
- P. 11: Remote monitoring of patients / apps for professionals / teleconsultation
- P. 14: Transport / repatriation of patients
- P. 14: Medical furniture
- P. 15: Modular premises, mobile units
- P. 16: Hospital human resources / training

For each company, a short description provided by the company and contact details are available. Product documentation can be provided upon request.

List of companies as of April 3, 2020 :

→ Vaccine and treatment: Sanofi Pasteur

Sanofi Pasteur, the global vaccines entity of Sanofi, will use its previous research on severe acute respiratory syndrome (SARS) to try to accelerate the development of a vaccine against COVID-19. To do this, Sanofi will collaborate with BARDA (Biomedical Advanced Research and Development Authority), which reports to the Office responsible for Preparations and Responses to Public Health Emergencies (ASPR, Office of the Assistant Secretary for Preparedness and Response) from the United States Department of Health, thus expanding the long-standing partnership that links Sanofi to this authority. Collaboration with BARDA will use proven DNA recombination technology from Sanofi to accelerate the development of a potential vaccine against COVID-19.
<https://www.sanofi.com/fr/media-room/communiqués-de-presse/2020/2020-02-18-16-00-00>

Sanofi Pasteur already shares its experience in vaccine research and development with CEPI (Coalition for Epidemic Preparedness Innovations). Sanofi and Regeneron will also test one of their rheumatoid arthritis drugs (Kevzara) as a potential treatment for coronavirus and launch clinical trials to determine if this treatment would treat symptoms of coronavirus infection. Website : <https://www.sanofi.com>.

Contact: Philippe Maugendre, Government Relations Department,
Philippe.MAUGENDRE@sanofi.com

→ **Diagnostic tests: bioMérieux, Atothis, Cerba Healthcare, iLsa Diagnostic, Santé en entreprise, Soladis**

bioMérieux has announced the upcoming launch of 3 tests aimed at responding to the epidemic of COVID-19 including:

- ARGENE® SARS-COV-2 R-GENE® test - Available from the end of March (having to rapidly benefit from a CE marking and going to be the subject of an emergency use authorization request from the American FDA). Can be performed by any type of laboratory using PCR techniques on most of the nucleic acid extraction and amplification platforms present on the market, it provides a result in 4 to 5 hours and makes it possible to test a large number of patients at a time.

- In parallel, development of a new fully automated test, using BIOFIRE® FILMARRAY® technology. With a result in about an hour, this test will be adapted to emergency situations of specific patient management.

- Finally, development of a new extended version of the BIOFIRE® FILMARRAY® RP2 respiratory panel which will integrate SARS-CoV-2 in addition to the 21 pathogens most frequently responsible for respiratory infections which it already allows to detect, in around 45 minutes.

These two BIOFIRE® tests will be submitted to the competent regulatory authorities in the 2nd and 3rd quarters of 2020 respectively.

In addition, bioMérieux markets EMAG®, a fully automated extraction platform for the purification of total nucleic acids from primary sample tubes. The extraction of genetic material is the first step in any molecular biology test and this platform allows: a single, standardized workflow for all samples and a generic extraction for DNA and RNA nucleic acids which can then be used with any identification technique. In the particular case of the fight against the coronavirus, this test is the first diagnostic response to the epidemic by allowing the very first tests proposed by learned societies and other centers to be performed.

Website: <https://www.biomerieux.fr/> . Contact: Isabelle Tongio, Directorate of Public and Governmental Affairs: isabelle.tongio@biomerieux.com

Atothis is the official distributor for France of the PrimerDesign diagnostic tests of the Novacyt group and of the CoVid-19 test for the detection of the SARS-COV2 coronavirus. This CoVid-19 test was designed to detect only the sequenced strains of 2019-nCoV that have been published and ignore the strains of other close coronaviruses such as SARS-CoV of the bat or MERS-CoV. It complies with the IVD directive 98/79 / EC and the ISO13485 standard.

In addition to its reliability and specificity, it has the advantage of being able to be shipped easily at room temperature and its lyophilized components have a shelf life of 18 months after its date of manufacture.

Contact: ATOTHIS, 150 Rue Amelia Earhart, Parc Marcel Dassault, 34430 St Jean de Védas.
T: 04 67 83 99 14, info@atothis.fr. Benjamin Ingrat, sales department: benjamin@atothis.fr. Valéry Périnet, Management: valery.perinet@groupe-antinea.fr. Jacques Petrequin, technical and commercial service: 06 88 85 31 09, jpetrequin@wanadoo.fr.

Cerba Healthcare has been able to carry out the COVID-19 diagnostic test in its biology laboratories since Monday March 9 with the support of the CNR of viruses responsible for respiratory infections of the Institut Pasteur (Paris) for the confirmation of positive cases. Together with its infectious biologists, Cerba has prepared notes and procedures that allow samples to be taken and samples to be delivered under optimal conditions.
Website: <https://www.lab-cerba.com>.

Contact: Stéphane Carré: stephane.carre@cerbahealthcare.com

iLsa Diagnostic, for the conservation of human samples at -80 ° C as part of epidemiological studies related to COVID-19, makes available its R&D department to adapt its NEO® Sample Management aliquot robot to the vials and collection tubes COVID-19 samples. iLsa Diagnostic thus contributes to guaranteeing total security in the preservation and storage of samples and absolute traceability with all patient data and freezer management. iLsa Diagnostic is the designer and manufactures storage instruments and microplates in its factories in France.

Website: <http://ilsa-diagnostic.com/index.php/en/sero-en>

Contact: Alain Pacoret: aepacoret@gmail.com

Santé en entreprise (SEE) already uses a solution in Ivory Coast (connected teleconsultation case) which allows for multi-disease screening (HIV, viral hepatitis, diabetes, hypertension). With a group of partners (AlloDocteurs, TC4A, SD Biosensor, Orange ...), SEE is implementing the "COVID-19 Mobile Lab", a suitcase for detecting COVID-19, making people aware of barrier gestures and enabling them detect symptoms from their mobile phone, quickly train local teams of health professionals in diagnosis, equip them with teleconsultation bags for home screening, refer suspected cases to confirmation if necessary (PCR lab test).

Website: <http://www.see-global-network.international>.

Contact: Erick Maville emaville@santeenentreprise.com

Soladis is a service company specializing in the analysis and enhancement of health data. In order to support the actors of Health in the urgent steps in connection with the COVID-19: pharmaceutical laboratories, biotechs, medtech, DTx... Soladis provides its bioinformatics, biostatistics and data sciences teams for the analysis of health data in link with COVID-19 allowing a better understanding of the disease and the effectiveness of associated treatments (preclinical, clinical, epidemiological data, etc.), allowing its better diagnosis, prognosis, or classification of patients at risk for personalized and personalized approaches. 'emergency (construction of algorithms).

Website: <https://www.soladis.com>. Contact: Anthony Perrussel: aperrussel@soladis.fr

→ **Medical Devices: Air Liquide Medical Systems, Cahouet, Germitec, Novair, Physioflow, Technologie Médicale**

Air Liquide Medical Systems is the Air Liquide Healthcare subsidiary dedicated to Medical Devices. The company designs, manufactures and markets innovative products in three areas: ventilation (ventilators and patient interfaces for intensive care, emergencies, transport, home), equipment for medical gases and aerosol therapy. In the context of the Covid-19, the teams are very strongly mobilized, in particular in the manufacturing of respirators to meet needs in France and abroad. Website: www.device.airliquidehealthcare.com
Contact: Nelly Santa Jorge - nelly.santajorge@airliquide.com

Cahouet has been a French manufacturer for more than 100 years of gas regulation equipment and in particular medical devices that allow the safe supply of medical gases to patients, essential for respiratory treatments and oxygen therapy linked to COVID-19. Two ranges of Cahouet medical devices are currently essential for hospital staff:
-The flow: flowmeters and flow meters that can connect to medical sockets or bottles, for the administration of oxygen (oxygen therapy), medical air or the N₂/NO gas mixture (allowing vasodilation of the lungs and improving tissue oxygenation). Cahouet also distributes low-pressure hoses, essential elements for connecting respirators to gas networks.
-Relaxation equipment for medical gas networks: various high-pressure regulators installed according to medical standards (ISO 7396) allowing the rapid and secure installation of a network providing uninterrupted gas medicine. This equipment is currently essential for field hospitals and for increasing oxygen capacity in high-demand hospitals. Website: <http://www.cahouet.com> . Contact: Louis GORAND commercial@cahouet.com

Germitec designs, manufactures and markets medical devices allowing UV-C disinfection of ultrasound probes (external and internal vaginal, rectal, transesophageal). It is a high level disinfection, effective against Spores, Mycobacteria, Non - enveloped viruses (norovirus), Fungi (Candida), Vegetative bacteria (MRSA, VRE) Enveloped viruses. The advantage of this solution in particular in this context of health crisis linked to COVID-19 is that it is quick and simple. By pressing a single button, a probe is disinfected in 90 seconds. Thus, the risk of virus transmission between each patient is greatly reduced, without disrupting the workflow of the medical staff. Website: <https://www.germitec.com/en>.
Contact: Christophe Hammer, c.hammer@germitec.com

Novair designs and manufactures systems for the production, distribution and monitoring of medical gases, including medical oxygen generators for the oxygen supply of health facilities. The generator allows the production of medical oxygen on the hospital site, on demand, from the environment. It relies on a proven technology, PSA (Pressure Swing Adsorption), which consists of a separation of gases from the air through a molecular sieve capable of adsorbing nitrogen under pressure. The oxygen produced is registered with European pharmacopoeia and complies with therapeutic requirements in hospitals. This solution has multiple advantages for the Hospital, especially in times of health crisis such as that of COVID-19: autonomy and an end of logistical constraints: the Hospital becomes its own supplier of medical oxygen and no longer depends on the ability of an external supplier to deliver it; Reduced operating costs: The Hospital produces only the oxygen it needs and is free of any supply contract and the transport and rental costs involved; Enhanced safety: no more heavy cylinders to handle, no more storage of hazardous or pressurized fueling gases, and reduced environmental impact: no more comings and goings of polluting trucks needed to deliver oxygen. Website: www.novairmedical.com - Contact: Valérie Bokobza, valerie.bokobza@novair.fr

Physioflow offers cardiac output monitoring systems to increase existing capacities in hemodynamic monitoring and volume management, essential in the management of patients with acute respiratory distress syndrome (ARDS). They are completely non-invasive (6 chest electrodes), miniaturized, small and light, cordless for some of them, reliable and easy to use. The patient cords are treated with a bioactive component limiting the survival of the germs on their surface. Our systems also make it possible to quickly and simply assess certain key elements of the patient's cardiac function (systolic, diastolic insufficiency, etc.), especially in a context of tension in medical teams and reduced availability of sonographers. This could prove essential in the current crisis if the teams are saturated. Also, for the evaluation and monitoring of infected patients, hospitalized, but not yet in critical condition, the device allows early information on the deterioration of cardiac parameters for patients whose condition is worsening. Their employability was briefly tested during medical transport by helicopter and ambulance. Website: <https://www.physioflow.com>. Contact: Frank Bour : f.bour@physioflow.com

Technologie Médicale, specializing in oxygen therapy and aspiration for 40 years, is at the heart of the oxygenation and resuscitation treatments of COVID-19 and is committed to equipping all University Hospital Centers (CHU) with flowmeters and flexible to oxygenate their patients in respiratory distress and also in vacuum regulators to de-clutter patients with bronchial secretions in order to facilitate their ventilation. Very much in demand, Medical Technology designs and manufactures its medical devices in France, which guarantees perfect control of product quality. This strategic choice makes it possible to respond, with responsiveness and adaptability, to the current emergencies of French hospitals.

Website: <https://www.technologiemedicale.com>.

Contact: Serge Itzkowitch : s.itzkowitch@technologiemedicale.com.

→ **Medical imaging: DMS Imaging, Guerbet, Stephanix, AdEchoTech**

DMS Imaging specializes in conventional radiology. It is able to provide medical imaging solutions for monitoring pulmonary pathologies through its solutions for remote-controlled radiology rooms, lung bone rooms, and mobile emergency radiology rooms. It offers a local technical service in France and abroad.

Website: <http://www.dms-imaging.com>. Contact: Samuel SANCERNI: ssancerni@dms-imaging.com

Guerbet, the world leader in medical imaging, remains fully engaged. Guerbet develops and produces contrast products used for diagnostics in medical imaging, including X-ray scanners and MRI scans. Guerbet also develops products used in interventional imaging. As part of the Covid-19 epidemic, iodized contrast products are used to track patients with worsening clinical signs. A chest scan with contrast product injection, with a usual iodine concentration (350 mg/mL), is then performed to look for worsening lesions or a complication such as pulmonary embolism or pneumothorax. Guerbet's teams are fully mobilized to continue the production of these essential products to healthcare professionals and patients.

Website: <http://www.guerbet.com>. Contact: claire.durand@guerbet.com.

Stephanix has been specializing in medical imaging for thirty-five years. We meet the needs of the radiology units of hospitals, clinics and practices, including solutions in conventional and digital radiology such as: remote-controlled tables, mobile radiology,

bone-lung rooms, surgical hoops, and many other equipment. Manufacturer of remote-controlled tables, we design, develop and manufacture our products in France.

In the context of COVID-19, our sales, technical and support teams are more than ever mobilized to meet the needs at the national level as well as for our distributors for export, on all our products. Website: <http://www.stephanix.com>.

Contact: Yannick Chapotot: ychapotot@stephanix.com

AdEchoTech develops the "Melody" telemedicine tele-ultrasound system, a telemedicine technique that allows an expert to perform an ultrasound on a distant patient (several hundred kms) under technical conditions and responsibilities very close to a conventional ultrasound. This technique makes sense in the face of the challenge of combating the covid-19 virus, by allowing in equipped places to establish an additional barrier to the spread of the virus: either by protecting isolated patients (EPHAD, prisons, isolated centres ...) by avoiding moving them, thus keeping them at a distance from the risks of contamination; either by allowing the expert to intervene and bring his expertise in remote locations to contaminated or un contaminated patients thus protecting the expert from possible contamination; Finally, the Melody device also enables the mobilization and use of quarantine experts or the support of experts from other regions since they do not need to move. Melody tele-ultrasound can be used in most ultrasound disciplines (abdominal, urological, pelvic, obstetrical, cardiological, thoracic, doppler...).

Website: <http://www.adechotech.com>.

Contact: Philippe Homsy : p.homsy@adechotech.com

→ **Sterilization/disinfection, hydroalcoholic solutions, masks: Aden, Alkapharm/Sodel, Deppik, Franklab, Impeto Medical, Steam France**

Aden is a French company specializing in facilities management high-tech, based in Shanghai, operating mainly in China, ASEAN and Africa. With 25,000 people in 80 major cities in China, its action has been/is strong in the fight against coronavirus. Offers the supply of masks especially in large volume, thanks to Aden's unparalleled sourcing capabilities. Contact: Didier Carraud, C3Medical: d.carraud@c3medical.com

Alkapharm/Sodel has comprehensive hygiene and disinfection solutions and offers a comprehensive service, ranging from identifying problems on the ground to implementing appropriate solutions. A French company (Lisieux, Normandy), Alkapharm/Sodel has been formulating, manufacturing and selling its products in healthcare facilities in France and around the world for more than 30 years. We are now working with health care workers to help them disinfect instruments, equipment and the environment. Find the list of Alkapharm products active on coronavirus: <http://www.alkapharm.fr/medias/documents/actus/flyer-recommandations-produits-coronavirus-fr-160.pdf>

Website: <http://alkapharm.fr/en/>

Contact: Pierre-François Lebart: pierrefrancois.lebart@alkapharm.fr

Deppik offers solutions to control biological contamination regardless of health risk and level of containment. Our regular customers are industrialists (pharmaceuticals, cosmetics and agri-food), research laboratories (P2, P3) and zootechnical units. In the context of COVID19, we offer our expertise to health facilities and other priority activities to enable them to continue their business or increase their reception capacity via: disinfection of surfaces by air with report emission for volumes of up to 500,000m³; intervention in France

as a whole; profile of stakeholders: Biologists, chemists (15 years of seniority). Deppik is a member of ASPEC, AFSTAL and is an active member of the AFNOR S95R committee of expertise - "Sterilization, disinfection and sterilizers". In addition, we offer for sale equipment (and necessary disinfectants) allowing the structures to be autonomous in disinfecting small volumes (200m3).

Website: www.deppik.fr. Contact: covid19@deppik.fr.

Franklab is a French manufacturer based in the Paris region, for more than 40 years of hygiene and disinfection solutions for hospitals in France and abroad. Franklab provides you with a comprehensive solution in controlling infectious risk through broad-spectrum antimicrobial disinfectant detergents to help you in the fight against COVID-19. Disinfectant detergent sprays and wipes are recommended for cleaning and disinfecting surfaces in health structures.

Website: www.franklab.com Contact: vanessa.rey@franklab.com

Impeto Médical is a French company, created in 2005, based in Paris and having had a subsidiary in China for many years. We develop and market innovative medical devices worldwide, in particular Sudoscan, indicated for monitoring diabetes complications and diagnosing and monitoring neuropathies. In view of the general shortage of protective masks from which our country is currently suffering, we have decided to contribute to the collective effort by setting up a channel to import masks to French territory from our Chinese subsidiary. We are in fact currently able to offer large quantities of CE marked FFP2 surgical masks with very competitive delivery times to France.

Website: www.impeto-medical.com

Contact: Jean-Louis Benezeth: jean-louis.benezeth@impeto-medical.com

Steam France is positioned throughout the sterilization value chain, in the field of Hygiene, Disinfection and Sterilization, and has been offering: The sale and installation of equipment (including sterilization, disinfection and destruction of infectious waste equipment), software (Supervision and Traceability) and new and used Medical Devices (DM), as well as their spare parts, consumables and accessories. The sale and execution of all services relating to the operation of equipment of all brands (installation, maintenance, metrology and regulatory and regulatory controls, evolution, moving, scrapping). The sale of multi-brand maintenance programs adapted to operational constraints and the completion of preventive and curative maintenance services. The sale and implementation of technical and functional training services, as well as support for the implementation and design of the Central Sterile Services Department (CSSDs).

Website: www.steam.fr. Contact: contact@steam.fr

→ **Hospital Waste Management: Bertin Technologies, Ecodas, STCF Equipment, Tesalys**

Bertin Technologies has developed the Sterilwave solution developed for the in situ treatment of coronavirus-contaminated waste, selected by China for hospitals in the Wuhan region. In February 2020, the Chinese Ministry of Health confirmed the acquisition of 20 Sterilwave routine stations to equip the main hospitals in the Wuhan region. These ultra-compact, innovative equipment, which has been proven to be effective in inactivation on viruses, can treat hospital waste at potential infectious risk with coronavirus (2019- nCoV)

directly on site and therefore eliminate any risk of contamination outside the hospital.
Website: www.bertin-medical-waste.com.
Contact: Aurélien Bataille: aurelien.bataille@bertin.fr

Ecodas has developed a patented, innovative and fully automatic process that grinds and then sterilizes infectious risk care activities (DASRI) with water vapour. This process combines grinding and sterilization in the same closed and compact enclosure. Sterilization takes place after grinding, at high temperature (138°C) and under high pressure (3.5 bars); without intermediate handling of waste. In such thermal conditions, no pathogenic microorganisms are resistant. The final product is therefore made up of sterilized grinders similar to Household Garbage (OM) that can join the urban waste sector. In addition, the initial volume of waste is reduced by 80%.

The ECODAS process is designed for all types of DASRI, solid or liquid, such as syringes, needles, plastics, glasses, unwoven textiles, tubing, hemodialysis filters and petri dishes. The ECODAS process is aimed at all structures producing or managing DASRIs: public and private hospitals, laboratories and service providers.
Website: www.ecodas.com. Contact: Jeff Squalli: j_squalli@yahoo.fr

STCF Equipment offers turnkey solutions for the management of hospital liquid waste. The hospital, through its activity, generates waste that is at risk to the environment and the health of others. To meet this need for public, social and environmental order, STCF Equipment markets and installs treatment plants for hospital effluents. Whether they are bacteriological, infectious, radioactive, high temperature, but also NRBC effluents in the context of white plane in particular. Thus, to control the risk of contamination of such effluents from the various hospital wards, isolation rooms or decontamination showers; our treatment plants, consisting of collection tanks and an automated management system, disinfect and neutralize wastewater before joining the common drainage system. Our solutions adapt to the needs of each customer, the infrastructure constraints that are required, and above all to the regulations in place.

Site: <https://www.stcfequipements.com/>.

Contacts: Pascale Lepage lepage@stcfequipements.com and Magali Cordeiro cordeiro@stcfequipements.com

Tesalys is a French manufacturer of systems for the on-site crushing and sterilization of infectious risk waste (DASRI). With a range of equipment to treat 5 to 100 kg/h, the TESALYS STERIPLUSTM and STERISHRED systems® are particularly compact, autonomous and ergonomic, allowing rapid deployment in medical centers, hospitals and clinics of all sizes, laboratories, hemodialysis centers... TESALYS also offers a full range of bioseathy risk control products including TESABOX and TESABAG infectious waste packaging, cryogenic waste storage units, and TESATRUCK mobile treatment units.
Website: www.tesalys.fr. Contact: Miquel Lozano: miquel.lozano@tesalys.fr

→ **Hospital Air Treatment/Disinfection: Airinspace, ATA Medical, Bioquell, Calistair, NatéoSanté, Mercate, Quasar Concept**

Airinspace produces PLASMAIRTM air decontamination technology, BIOCAIRTM negative pressure isolation chambers and DSVA machines. Hundreds of machines have already been sent to China. PLASMAIRTM mobile air decontamination units are used in patients' rooms, emergency departments, corridors and patient waiting rooms. The patented HEPA-MD technology combines destruction of microorganisms, HEPA H14 filtration and adsorption of

chemical compounds and odour. The air is continuously decontaminated and the large flows of the units allow a large number of air renewals per hour and to process large volume parts.

Website: <https://www.airinspace.com>.

Contact: Stéphane Chatenet: stephane.chatenet@airinspace.com

ATA Medical produces the dopair, Room dopair, Multizone dopair, ISOLAIR Isolation Tents and CTMP immunosuppressed patient boxes. Our units are currently delivered to more than 35 countries in the fight against COVID 19. Our units are used in isolation rooms, resuscitation and intensive care etc by their ability to treat large volume. Our technology is a combination of Hepa 14 filtration and decontamination via photocatalysis or Bioxygen with excellent results on microorganisms such as Viruses, Bacteria and Spores.

Website: <https://www.ata-medical.com>.

Contact: Boris Ebrahim b.ebrahim@ata-medical.com.

Bioquell has a full range of solutions dedicated to contamination control, ensuring its customers complete security of their process, improving their productivity and meeting regulatory requirements. In order to respond to emergencies and the Covid-19 outbreak, Bioquell offers its bespoke bio-decontamination service suitable for all types of facilities and volumes. Our hydrogen peroxide vapor bio-decontamination technology eliminates microorganisms on all exposed surfaces and is effective on Coronavirus (Coronaviridae family see efficacy list). Bioquell has already intervened around the world on this type of contamination (SARS, MERS-Cov,...), or other such as Ebola and is currently involved in the COVID-19 epidemic. Here is our list of microbiological efficacy (<http://bioquell.tecture.net/wp-content/uploads/2017/08/BIOQUELL-EFFICACY-DOCUMENT-BQ001-MKT-011-FR.pdf>) as well as a video of our bespoke bio-decontamination service (<https://youtu.be/zlKdcirXKoU>).

Website: <http://www.bioquell.com>. Contact: Benjamin Morel benjamin.morel@bioquell.fr

Calistair designs and develops high-capacity mobile air treatment units up to 4000 m³/h for the hospital setting. Our units are equipped not only with HEPA or ULPA filters but also with our Athermic Catalysis technology that destroys biological microcontaminants - viruses, bacteria and fungi - and VOCs with formidable efficiency. To date we have equipped more than 80 hospitals as well as laboratories and clean rooms. Website: <http://calistair.com>. Contact: Alain Hachet a.hachet@calistair.com.

NatéoSanté is a company known for its expertise in indoor air quality for more than 10 years. It offers high-tech eco-designed professional solutions manufactured in France with a quality filtration system that meets health and hygiene requirements. It equips daily medical environments (hospitals, clinics, medical practices, EHPAD...) as well as professionals heavily exposed to indoor air pollutants. The EOLIS Air Manager air purifier effectively reduces the aerial spread of microorganisms including viruses such as COVID-19. It is equipped with a Biocide Prefilter (effective against the proliferation of bacteria and viruses), a high-density Active Coal Filter, (in order to retain VOCs - Volatile Organic Compounds - and Gases), an EN1822-4 Certified HEPA Filter (effective against fine particulate matter up to 0.1 µm), UV-C germicides and an exclusive and controlled option with Active Oxygen that complements the virucid action. An exclusive patented feature allows it to measure and display in real time the effective wear of the filter to ensure optimal filtration at all times. <https://www.youtube.com/watch?v=qlznLY-ePhU>

Website: <https://www.nateosante.com>.

Contact: Xavier Blanc: xavier.blanc@nateosante.fr

Mercate designed the evO2 solution to clean the air inside microbiological pathogenic species (viruses, bacteria, fungi) including chemical pollutants and odours. evO2 incorporates advanced Oxidation Technology (AOP), which is the result of 5 years of intensive research with CNRS and INSERM partners. This technology has been tested on a wide variety of airborne viruses and there is no doubt that SARS-VOC-2 can also be inactivated thanks to evO2. evO2 cleans up air between 50 and 150m2. In addition, its anti-microorganism activity ensures its constant effectiveness for 8000 hours. Connected device (by WiFi or LoRa network), its state of operation can be controlled remotely. evO2 installs in minutes, it is handy thanks to its wheels and easy to use without staff training. evO2 will complete the implementation of all tools and procedures to decontaminate the air and stop the spread of Coronavirus in health facilities, medical practices, consulting rooms, and waiting rooms. AOP international patent USA, CEE, India, China, Israel. Website: <https://www.evo2-air.com>. Contact: Marie-Laurence Borie ml.borie@mercate.fr

Quasar Concept produces TWINCRUISER®, a high-performance process for disinfecting surfaces by air. It meets the disinfection requirements/standards that traditional products now face. TWINCRUISER incorporates a dynamic diffusion system (venturi buse and on-board ozone generator). The equipment is used with a hydrogen peroxide solution (H2O2) and - if necessary - peroxone (O3-H2O2). Hydrogen peroxide (H2O2) is a powerful oxidizer. It is more potent than dichlore (Cl2), chlorine dioxide (ClO2), and potassium permanganate (KMnO4). Hydrogen peroxide is widely used to contain dangerous infectious epidemics in different health environments.

Website: <http://vigitechnics.com>.
Contact: Vincent Menanteau vincent.menanteau@vigitechnics.com

→ Room and insulation equipment: Eurobioconcept, Ilithia France, Villard Medical

Eurobioconcept offers the Isoroom solution, which allows you to quickly transform a conventional room into a negative pressure room with filtered air. Features: transparent wall for outside observation, optional cuff/x-ray cuff panel, waterproof cuffs for the passage of probes, cables or tubes, SAS with two doors, assembly in 1 to 2 hours. The portable Isoroom is an ideal solution to quickly isolate a person or object contaminated with infectious particles or diseases and transport them to an area for safe treatment. Covid-19: Eurobioconcept also offers a transport module that allows patients to be safely moved to areas less affected by the epidemic while protecting the medical team and crew from exposure to the virus. These stretchers are suitable for any type of transport: plane, train, ambulance, or helicopter.

Website: <http://eurobioconcept.fr>.
Contact: Cyrille Rouchès c.rouches@eurobioconcept.fr.

Ilithia France designs and provides cleanroom solutions under its MOTTECH brand. As part of the fight against COVID-19, we have developed a kit insulation room concept. This sterile room can be used as an isolation chamber for the treatment of a patient as well as a laboratory for testing. The insulation room is built in two days, thanks to its modular structure in sandwich panels, its set of built-in equipment (door, glazing, lighting, blocks taken, etc.) and its compact air treatment plant.

Website: www.motech-cleanroom.com Contact: Fabrice Lafond, f.lafond@ilithia.net

Villard Medical offers under the brand name PH2 International two specific solutions in the fight against COVID-19. The compact and modular isolation trolley (UMP® COL C) has been designed to facilitate with optimal safety the rapid implementation of precautionary procedures inside or outside the patient's room (depending on the type of isolation). A modular and compact prevention tool to be placed at the various reception points of a health facility during influenza episodes, the Influenza Prevention Unit (UPG®) ® is designed to limit the risk of transmission of influenza and other infectious diseases. Website: www.ph2international.com. Contact: Jérôme Ficamos j.ficamos@villard-medical.com

→ **Remote patient monitoring / professional apps / teleconsultation: 360 medics, Biocorp, Biosency, Catel, CDM e-health, Diabnext, E-Medservice, France Surgery, H4D, Maela, myDiabby Healthcare, Dr Lataud project**

360 medics is an application and web interface that brings together the resources and tools needed to practice caregivers in the daily lives of caregivers: news, search engine, drug base, medical tools, task management, messaging. Used by more than 225,000 caregivers, including 92,000 physicians, the solution can communicate how to communicate the way it is, and 360 medics can quickly develop specific mobile tools built into the app: diagnostic assistance, interactive decision-making tree, good practice sharing, patient management tool. Website: <https://www.360medics.com>. Contact: Claire Chauvallon claire@360medics.com

Biocorp develops, produces and markets Mallya, a medical device dedicated to diabetic patients. Affected by a chronic disease, these patients are among the most fragile people in the current context of the Covid-19 pandemic. CE DM class II-b certified, Mallya can be easily attached to insulin pens and makes it possible to monitor the injections (recording of the dose injected, type of insulin, date and time) made by the patient during of the day. This online follow-up log can then be shared with the nursing staff, thus offering the assurance of better continuity of treatment for the disease in the current context. Website: <https://biocorpsys.com/en>. Contact: Éric Dessertenne: edessertenne@biocorp.fr

Biosency has developed and marketed the BORA Connect™ solution dedicated to telesurfacing respiratory diseases and which can support the response to COVID-19 by helping to monitor the vital parameters of patients at home, both for those who are known/suspected of infection with COVID-19 as well as for those at higher risk (chronic respiratory diseases, immunodepressed patients, or isolated elderly people...). Tele-monitoring at the patient's home would reduce front-line pressure in hospitals. BORA Connect, certified CE DM Class 2a, monitors respiratory rate, oxygen saturation, heart rate, peripheral temperature and activity (measurement of number of steps); Visualize the evolution of these parameters through applications dedicated to the patient and healthcare actors. Website: <https://biosency.com>. Contact: Yann Le Guillou yann.le.guillou@biosency.com

Catel has supported since 1997 the deployment of telemedicine practices and, more broadly, digital healthcare. We have believed for more than 20 years in the advantages of these uses, and in this difficult period, we put more than ever our skills and our network

at the service of the general interest. Catel is opening <http://en.teleconsultez.fr/> to meet the needs of healthcare professionals who wish, in an emergency, to implement teleconsultation to deal with the emergency of the health crisis linked to Covid-19. The first step is to allow them to quickly find the information they need to launch their first teleconsultation uses, either through articles and reference documents or through direct exchange with their peers or domain experts in the forum. The professionals concerned will find the answers to their most urgent questions: why do teleconsultation in this context of crisis? In what context is this authorized? Who can carry out these teleconsultations? How to invoice the acts? Which solution, which material to choose? How to refer my patients to teleconsultation? Will the handling be quick, on the caregiver side? The reference information and published testimonials come from the French experience but can be enriched by other French and English-speaking experiences. You can also benefit from the support of Catel thanks to its consultancy and engineering activity (for example, Catel currently supports the WAHO and the 15 countries of the ECOWAS region in their transition to digital in Health).

Websites: <http://en.teleconsultez.fr/> and <https://catel-esante.fr>

Contact: pierre.traineau@catel.pro

CDM e-health, a subsidiary of the Air Liquide group, offers the "Chronic Care Connect" e-health solution. Chronic Care Connect™ is Air Liquide's remote medical monitoring program which aims to improve home monitoring of patients suffering from chronic diseases by combining medical remote monitoring and support by State-certified nurses who carry out human screening of alerts in the monitoring center. CDM e-health through its Chronic Care Connect solution today included more than 2,000 patients in France, this in coordination with private doctors and health establishments. In the context of the Covid-19 crisis, our teams are mobilized around the support of remote monitoring patients at their home, especially for those suffering from heart failure.

Website: <http://www.chroniccareconnect.com/index.html>

Contact: valerie.contestable@cdmehealth.fr

Diabnext is a diabetes remote monitoring solution, improving patient care, preventing complications and hospitalizations related to the disease and thus reducing associated costs. The solution combines a web platform for healthcare professionals and a mobile application for patients, which is connected to connected devices that automatically retrieve patient data. In particular, it offers caregivers the opportunity to track patient data, ensure secure exchanges with them and remotely optimize their treatments. Diabnext is reimbursed by the CNAM and approved by the DGOS. Created by a type 1 diabetic patient, the solution has developed differentiating advantages, which have convinced many renowned hospitals and has been undergoing a very dynamic deployment since its launch. In addition, Diabnext is an inexpensive innovation to implement.

<https://docs.google.com/presentation/d/1mcB3XP1ujnvytbFCfbvJZcXDDw6GwP-KSmbYZNesqY/edit?usp=sharing>

Website: <https://www.diabnext.com>. Contact: Laurent Nicolas laurentn@diabnext.com

E-Medservice is a digital Patient Relationship Management platform for healthcare professionals. E-Medservice allows you to contact or follow patients/entourage directly at home by email, text message or phone. Given the current context, e-Medservice proposes to contact patients very quickly and to take initial actions remotely: cancellations of consultations/non-urgent care; recalls of health instructions; monitoring of patients at home (questionnaires, notifications). The service is entirely Saas, requires no installation

or download and is therefore aimed at all patient profiles.
Website: <http://emedservice.mystrikingly.com/>.
Contact: Alexandre Benoit alexandre.benoit@e-medservice.com

France Surgery offers a multilingual digital assistant, dedicated to expatriates and international patients. Because you never know what can happen when you are away from home, France Surgery allows patients to be in direct contact with the best French doctors and specialists, in 37 medical and surgical specialties thanks to medical assistance solutions: Secure Teleconsultation, Second Medical Notice, Assistance Care Course, Call center multilingual patient. It is the assurance of being accompanied on a daily basis, on any health problem, wherever one is in the world. In the current context of the COVID-19 crisis, France Surgery allows many French expatriates abroad (employees, students...) to be in contact with a French doctor to reassure them and follow them remotely when needed. It also allows foreign expatriates in France to have access to personalized and multilingual medical assistance.

Website: www.france-surgery.com. Contact: carine@france-surgery.com

H4D has developed a global telemedicine solution around the first connected medical booth, the Consult Station. The H4D solution supports all the dimensions necessary to implement a professional medical practice to fully integrate into each local context. H4D is actively involved in the response to COVID-19. In particular, we install cabins in emergency services in referral and teleconsultation to support caregivers, but also in health centres with the Red Cross as well as in isolated villages to follow patients.

Site: <https://www.h-4-d.com>. Contact: Franck Baudino franck.baudino@h4d.com

Maela offers a digital platform for preparing, supporting and monitoring patients who can benefit from early home returns. The Maela solution helps guide and secure patients at every stage of their care with pre- and post-operative follow-up. As part of the COVID-19 epidemic and to contribute to the effort required of health workers, Maela offers its tele-assisted services free of charge to health facilities. Available now and without prior installation, a follow-up protocol containing HAS instructions and instructions is available to remotely track patients. Maela provides facilities with its Maela digital monitoring platform to accompany and follow patients in their home care during the fourteenth, making the link with the health care institution. For example, patients can send daily follow-up questionnaires (using the main warning signs: fever, cough, breathing difficulties), indicate if they have had contact with other people, exchange through secure messaging, receive instructions and behaviours to be kept, access information documents...

Website: <https://www.maela.fr>. Contact: Hubert Viot hubert.viot@maela.fr

myDiabby is the most widely used diabetes telemedicine platform in France with more than half of the healthcare facilities using (280 centres - 100,000 patients followed). The platform has been in existence for 5 years, is designed and developed in France and is reimbursed by health insurance for the Telemonitoring section. During the Covid-19 period, we have implemented all the features free of charge to allow medical teams to continue to follow their diabetic patients 100% remotely.

(<https://www.mydiabby.com/post/mydiabby-suivi-diabete-100pourcent-distance>)

Site: www.mydiabby.com. Contact: Anastasia Pichereau ana@mydiabby.com

Project Dr. Lataud: medical biologist, his project application esanté allows the care of patients from the smartphone or PC of doctors. The app is free in its basic version. The application makes it possible to use all existing solutions, applications and artificial

intelligence software universally. It allows the epidemiology of the population to be carried out in real time, especially in this context of covid19. Automated care can be coordinated between city doctors and the hospital, care management is optimized within hospital facilities and coordination is ensured. Emergency control services can visualize a geographic area and its population in real time. Strategic interest may also be of interest to prefectural services. Contact: Dr. Emmanuel Lataud manu-lr@hotmail.fr

→ **Transport/repatriation of patients: Actimep, Airlec, Atoptima, Bisom**

Actimep is an inter-hospital medical transport company in Ile-de-France. Samu-regulated reinforcement is available to take care of patients at home. We have four medical mobile units for transporting patients. Contact H24: 01 49 12 10 10. Dr Aziz Makhoulf : aziz.makhoulf@yahoo.fr

Airlec is able to carry medical, domestic or international air transport, contact cases or confirmed cases COVID-19; confirmed cases in England have already been repatriated. Website: <http://airlecairespace.com/ambulance>. Contact: Paul Tiba paul.tiba@airlec.eu

Atoptima is a software publisher producing modules for optimizing operations. This "DeepTech" startup is a spin-off of Inria and University of Bordeaux. Atoptima has developed a decision support tool to organize the transport of patients requiring hospitalization: care at home and transport to a specific care center. Objectives: reduce the time taken to care for patients in hospital; rationalize the use of medical vehicles; regulate the load level from one hospital to another. For the duration of the health crisis linked to COVID-19, Atoptima graciously offers to healthcare players the implementation of the tool (support in onboarding + personalization at the margins) as well as its use. Health transport players can express their interest in this application by writing to solidarite@atoptima.com.

Website: www.atoptima.com. Contact: Adrien Duruisseau: adrien@atoptima.com

Bisom is a mobile application combined with a SaaS web application that connects, through digital, the actors of the medical emergency. Ambulances, firefighters, SMUR, EHPAD, Civil Security, Army are thus connected in real time to their medical regulation service of attachment, to third-party doctors experts and downstream service of hospitals to increase diagnostic efficiency, delay in implementation of care and optimize the regulation of the flow of emergencies. This medical emergency monitoring solution is developed in relation to the Northern UAS. Note two major features: followed by a medical regulator of health transport (live coverage of the patient's situation - vital parameters, follow-up of gestures made, treatments implemented, transfer of images, diagrams, short videos -1mn); and teleconsultation in regulation (the regulator can contact the caller via BISOM and access the cameras on his smartphone to clarify the diagnosis). BISOM is a member of Clubster NSL (Hauts-de-France).

Site: <https://www.bisom.fr>. Contact: philippe.leroy@bisom.fr.

→ **Medical Furniture: AHF, HAcare, Nausicaa Medical, Winnicare**

AHF has specialized since 1947 in the design and production of beds and furniture for hospitals, clinics, retirement homes and communities. It combines performance and quality of the products offered "Made in France" while focusing on an ambitious environmental and

sustainable development policy. Products: Medical Beds Court Stay, Hotel Medical Beds for Senior Residences, Retirement Homes, VIP Services, Wardrobes, Bedside and Bed Eating Table.

Website: <https://www.groupe-ahf.fr>.

Contacts: Florent Macarez fmacarez@groupe-ahf.fr and bsapin@groupe-ahf.fr

HAcare is called upon daily in the current context of the COVID-19 pandemic by medical institutions to meet their equipment needs for continuing care /rea beds (Proclive/Declive); inpatient beds and bedroom furniture such as dining table; medical bed for home care for some patients; hospital mattresses; emergency stretchers; emergency trolley, anesthesia, resuscitation, care, dispensation of medication; Mobile protection unit for isolation room; Pharmacy storage cabinets and sterile/single-use (DM) consumables. Our HACARE group, which includes SOTEC and ALLIBERT MEDICAL, has taken the decision at this time to intensify our production of medical equipment dedicated to the device for the management of patients infected with coronavirus. We have just doubled the production of our YSALYDE 4 range of medical beds at our Nantes-based plant for the next eight weeks to meet the many demands from all continents.

Website: www.hacare.com. Contact: Saril Abdallah s.abdallah@hacare.com

Nausicaa Medical designs, manufactures and markets "Made in France" products for geriatrics, disability, rehabilitation, rehabilitation and palliative care. The company is fully mobilized in the current effort, always in operation strictly respecting the rules of hygiene and can therefore offer its products: lifts, verticalizers, straps, mattresses, medical beds. Website: <https://www.nausicaa-medical.com>.

Contact: Clement Chauzat clement@nausicaa-medical.com

Winnicare is a manufacturer of medical beds and accessories, therapeutic mattresses in France. An Activity Continuity Plan (PCA) for Coronavirus is in place to deal with emergency patient influxes and the retention of patients and residents.

Website: <https://www.winnicare.fr>.

Contact: Vincent Goumy vincent.goumy@winnicare.fr

→ **Modular premises, mobile units: Comeode, Toutenkamion Group**

Comeode, providing general contracting contractor mastery (plans, studies, piloting), proposes the provision, development and installation of temporary modular premises adapted to medical needs. Companies associated with the initiative: COUGNAUD (modular buildings, assembly, transport - installation), SARC - RENNES TP (Terrassement and VRD), AFTP (Terrassement and VRD), BAILLY (Inner Agency, partitions - modular partitions, ceilings, wood carpentry / Alu / PVC), SPIE 22 (Electricity CFO / CFA / sick call / SSI), SYLVESTYRE - Vinci Group (Electricity CFO / CFA / sick call / SSI), PCBG (Plomberie / heating - electricity, gas, fossil fuels, photovoltaic), SARL LAMBERT (Plomberie / heating). Website: www.comeode.fr.

Contacts: Frédéric Debureau (CEO) frederic.debureau@comeode.fr and Benoit Laignel (Technical Director) benoit.laignel@comeode.fr.

Toutenkamion Group designs, manufactures and markets mobile medical units that are used in more than 40 countries, including Africa. With many years of experience and a European leader, the company develops mobile medical solutions tailored to trucks, semi-

trailers or containers for all healthcare professionals in order to reach rural populations in remote areas and thus reduce inequalities in care caused by remoteness and improve their efficiency. Anykamion Group offers a wide range of sustainable and cost-effective products to meet the needs of its customers in many medical specialties such as screening for communicable diseases (Covid-19, tuberculosis, AIDS, ebola...), but also noncommunicable diseases (cancers, diabetes, high blood pressure...). Allnkamion Group offers a wide range of mobile solutions in fields as diverse as X-rays, mammography, ultrasound, CT scans, biology and virology, infectious waste treatment, dentistry, blood donation, and innovative E-Health solutions.

Website: www.toutenkamion-group.com

Contact: Bertrand PLOUVIEZ b.plouviez@toutenkamion-group.com

→ Hospital Human Resources / Training: Invivox, Medelse, SPH Conseil

Invivox, a platform for the continuous training of health professionals, is at the service of caregivers to facilitate the dissemination of knowledge - experiences related to COVID-19. The offer is simple and free: just fill out a form (<https://lnkd.in/diciWXY>) and Invivox takes care of everything else: creation of the Webinar, publication on the Invivox platform, dissemination, technical management, registration management. Find the next webinars on the page: <https://invivox.com/training?query=covid>

Website: <https://invivox.com>. Contact: Julien Delpech: jdelpech@invivox.com

Medelse is mobilizing to help health facilities affected by Covid-19 nationally by making its recruitment platform and community of 30,000 practitioners available free of charge. The following specialties are offered free of charge until April 30, on vacation/mission daily, without any fees or commitment Medelse: General Practitioner, Emergency Physician, Geriatrician, Anesthesiologist-Resuscitator, Nurse IDE, Nursing Assistant. In order to send you the profile details within a maximum of 24 hours, we have opened our platform to all health facilities. Also you can send your urgent needs by providing HR information here.

Website: <https://www.medelse.com>.

Contact: Gaëlle Coquard gaelle.coquard@medelse.com.

SPH Conseil, a subsidiary of the Fédération Hospitalière de France (FHF), has specialized for more than 10 years in supporting health professionals. Its SPH Campus pole dedicated to training, managerial coaching and mediation offers you voluntary support during this crisis situation, in particular through individual coaching and group support provided by its team of professional coaches. Our recognized expertise covers the following themes: organizing and managing your team remotely - managing your emotions and stress (relaxation, meditation, sophrology, heart coherence) - maintaining team morale - resolving disagreements and tensions in crisis situations . 30-minute webinars dedicated to these approaches are being created.

Website: www.sphconseil.fr. Contact: François Madelmont: f.madelmont@fhf.fr