# NOVARTIS

# Brazil COVID-19 Response

An AI platform in São Paulo, Brazil, is helping diagnose COVID-19 patients faster.

The Novartis Foundation is partnering with the local government and University Hospital of São Paulo to help develop a national ecosystem for innovation, data science and AI in health. The first step is developing an 'AI nucleus' at the São Paulo University Hospital – Brazil's largest hospital. The hospital's Institute of Radiology (InRad) and innovation department (InovaHC) are leading the initiative, which is supported by a diverse set of cross-industry partners.

The first element of the AI nucleus is a platform to help doctors diagnose and treat COVID-19. The platform analyzed over 10,000 images of patients' lungs in its first four months of operation – between May to August 2020 – identifying 70% as positive for COVID-19. It is powered by a vast database of patient chest x-rays and CT scans from 40 hospitals in Brazil. The fast and simple process identifies common patterns created by the disease in the medical images. It shows the degree of lung damage, which helps doctors prioritize who needs the most urgent treatment and decide on the best treatment options.

The process for developing the COVID-19 detection platform will be used as a blueprint to expand the AI nucleus by developing platforms for other disease areas, such as cardiovascular disease.

The Novartis Foundation's role in the initiative included supporting a public call for proposals to develop the AI model, and helping develop the technology needed to store, analyze and share the database of lung images that powers the AI platform.

## Unlocking private sector innovation in government

The Foundation is also supporting a broader initiative by the government of São Paulo to tap into private sector innovation. The new government innovation platform Ideia Gov is launching public calls for proposals for innovative solutions to address its most pressing health challenges. Its first calls sought proposals for better monitoring of vital signs, affordable and replicable COVID-19 diagnostic tests, and the AI solution for supporting COVID-19 diagnosis through the analysis of the lung images.

## About InovaHC

InovaHC aims to encourage innovation inside and outside the Hospital das Clínicas of the Faculty of Medicine of the University of São Paulo. It also manages the intellectual property generated in this environment, and provides means to promote the transfer of scientific, technological and cultural knowledge to the public and private productive sector, aiming to improve public health in general. This general purpose is in accordance with state and federal laws, which aim to make technological innovation a strategic component of economics and development.

## About InRad

The Institute of Radiology (InRad) of Hospital das Clínicas, Faculty of Medicine, University of São Paulo (HCFMUSP) is a center of excellence in research, diagnosis and imaging therapies. It is also responsible for

the pharmaceutical production of items used daily for clinical research and also for products used in the clinical routine and drugs produced in the nuclear medicine sector for the cyclotron, particle accelerator that produces the radioactive glucose formula FDG (Fluorodeoxyglucose) used in PET (Positron Emission Tomography) exams.

## Partner organizations

- Amazon Web Services
- Banco Interamericano de Desenvolvimento (BID)
- Colégio Brasileiro de Radiologia e Diagnóstico por Imagem (CBR)
- Deloitte
- GE Healthcare – Divisão de Enterprise Digital Solutions (EDS)
- Grupo Fleury
- Hospital Sírio-Libanês
- Huawei
- Instituto Tellus
- Ministério da Ciência, Tecnologia, Inovações e Comunicações (MCTIC)
- Novartis Foundation
- Petrobras
- Secretarias estadual de da Saúde
- Secretarias estadual de Desenvolvimento Econômico
- Siemens Healthineers - Área de Digital Health
- Sociedade Paulista de Radiologia e Diagnóstico por Imagem (SPR)
- Todos pela Saúde – com apoio do Itaú Unibanco

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