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# Opinion – Sou Ciência: Pro-life technologies against necropolitics

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In our panel “Universities in Defense of Life”, SoU_Ciência sought to tell the story of a portion of those who fought tirelessly for life in the pandemic, even facing the precarious conditions of our institutions, with drastically reduced budgets, suffering lying defamatory attacks, cutting grants, threats to freedom of teaching and research, and interference in the choice of deans, among others.

In the last 4 years, resources for investment in universities have fallen by 90%, which means that laboratories and research centers have not been able to expand and modernize their infrastructure in order to renew their equipment parks. In other words, the scenario was really one of war and the universities carried out a joint effort in the conditions they had, on all fronts, as we have already reported in other thematic studies.

In our latest study of good practices by federal universities in combating the pandemic, we highlight the development of software and applications for various purposes, the production and repair of hospital and personal protection equipment (PPE) for frontline professionals and the population in general. To this end, laboratories with other purposes were quickly reconverted and mobilized to collaborate with the most critical areas of emergency care.

Let’s look at some examples:

The first emergency front was the construction or repair of ventilators/mechanical ventilators to increase the oxygenation of patients in need of intensive care. There was a shortage in the market, difficulty in replacing parts, and international production was all being bought by the richest countries and/or those that quickly mobilized for this. Universities formed a network and a task force to act on this front, including developing prototypes and new products, in partnership with municipal and state health departments, at low or zero cost. Among them, registered in the Panel, are the Federal ones of Alagoas, Brasília, Goiás, Juiz de Fora, Lavras,

Oeste do Pará, Ouro Preto, Recôncavo Baiano, Santa Maria, São Carlos and Tecnológica do Paraná.

Associated with the respirators, quick and effective decontamination processes were improved for their immediate reuse in new patients, sealing for non-invasive ventilation masks with positive pressure and improvement in the sealing of the tracheal intubation system. New disinfection systems and biodegradable and antiviral filters were also developed, reduction of the concentration of microorganisms in the air, by capture and sterilization, and decontamination chambers by ultraviolet irradiation to sterilize environments.

In the research and production of personal protective equipment for health professionals and the general population, several fronts were also mobilized, in the Federal States of Bahia, Espírito Santo, Juiz de Fora, Ouro Preto, Paraná, Uberlândia and Tecnológica do Paraná. Engineering laboratories were mobilized to develop and produce masks, face shields, visors, non-invasive ventilation helmets, and to test filtering capacity, using nanotechnology, nanocellulose and 3D printers.

Other initiatives worth highlighting: the development of a probe for rapid detection, in a partnership between the Federal da Bahia and Harvard, the use of artificial intelligence for diagnosing the infection through imaging tests (UniRio), the development of a low-cost joystick for exercises respiratory devices, with an electronic device connected to a computer in which a patient controls free games available on the internet, associated with blowing and sucking exercises (UTFPR).

Finally, the development of software and applications with diverse and complementary purposes was also abundant: for mapping agglomerations and risk zones in real time, for use on cell phones for guidance and recommendations to any citizen; for symptom monitoring and referral to teleconsultations and assistance in the SUS; for monitoring the progression of vaccination; with tutorials on the use of masks and hygiene; software for monitoring hospital capacity and optimizing the occupation of vacant beds; in addition to those aimed at supporting telehealth and the clinical reasoning of professionals (which was already highlighted in our first thematic study of this Panel).

We close with this last article the balance and overview of the performance of Federal Universities during the Covid-19 Pandemic in Brazil. 40 Federal Universities actively participated in the research, with the support of ANDIFES, National Association of Directors of Federal Educational Institutions. The material collected and presented leaves no doubt that public universities, and those who work in them, were among the main Brazilian institutions and professionals who

mobilized amidst the tragedy to defend the right to life. And much more they could have done if they weren't facing the destructive aim of the Federal Government itself.

The final report of the Pandemic CPI portrays who was at the forefront of necropolitics in Brazil. Denouncing the government's performance in the pandemic, with mistaken, erratic and denialist measures, delaying the right moment for population orientation, public health campaigns, vaccination – in addition to the war waged against non-aligned governors and mayors. Brazilian society has already given the first response in the 2022 presidential elections, and will give many others. Justice and history will also pass judgment.

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