

29 novembre. Soutenance de Thèse

Karla Flores, doctorante dans l'équipe BIOETHICS :

**vendredi 29 novembre 2024 à 14h**, dans la **salle des thèses** de la **faculté de médecine de Purpan** (37 allées Jules Guesde).

**Titre** : Population- based age-stratified epidemiological and ethical research for covid-19 infection of Pichincha province, Ecuador 2020.

**Direction** : Rial-Sebbag E ; co-direction : Sánchez del Hierro G.

**Jury** :

- . M. Dominique SPRUMONT, Rapporteur, Université de Neuchâtel - Suisse
- . Mme Fadya OROZCO, Rapporteur, Universidad San Francisco de Quito
- . M. Cyrille DELPIERRE, Examineur, INSERM Occitanie Pyrénées
- . Mme Emmanuelle RIAL-SEBBAG, Directrice de thèse, INSERM Occitanie Pyrénées

**Membre invité** :

M. Galo SÁNCHEZ DEL HIERRO, Pontificia Universidad Católica del Ecuador

**Abstract** :

The infection linked to acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has increased its incidence worldwide, with a rapid spread that necessitated declaration as a public health event of international importance, it reports in at least 187 countries, with the subsequent declaration of a pandemic on March 11, 2020 by the World Health Organization. The first report, carried out by the Wuhan Municipal Health Commission, Hubei Province - China notified a conglomerate of pneumonia cases linked to a new coronavirus on December 31, 2019. In Europe, the first cases were identified in Italy, from January 19, 2020; By the end of March 2020, a total of 840,246 cases diagnosed by laboratory tests and 70,583 deaths related to COVID-19 were recorded. Data on the clinical presentation and epidemiological factors of laboratory-confirmed COVID-19 in Ecuador are rare and limited despite the difficulty in generating scientific information. In 417 cases who presented with COVID-19, the most common general symptoms of the disease were: cough, muscle pain, loss of appetite and fever; symptoms related to the ENT system, the highest prevalence were nasal congestion and facial pain. 86% of infected patients experienced partial or total odor perception problems and 88% reported partial or total taste problems; before, during and after the appearance of general symptoms. Nau refers to a probable association between anosmia (associated or not with dysgeusia) and SARS-CoV-2 infection as a possible initial symptom of the disease; whereas it is essential that all patients with new-onset anosmia are classified as SARS-CoV-2 infected until proven otherwise.

In Ecuador, the pandemic has raised a large number of ethical challenges surrounding the need to ration scarce intensive care resources without any policies regarding clinical measures and appropriate prioritization of health care and how to alleviate concerns of discrimination and the effects of structural inequalities. Ecuador's CFR is 4.03%, analyzed by cantons the CFR increases to a median of 5.75%, with cantons like Playas with a CFR of 32.39%. The morbidity rate has a median of 795.31 per 100 000 hab. with the highest rate in Isabela-Galápagos (10185.49), Aguarico-Orellana (9506.75) and Baños-Tungurahua (4156.85). And the crude COVID-19 death rate has a median of 39.73 per 100 000 hab. with the highest rate in Penipe-Chimborazo (201.29), 24 de Mayo-Manabí (143.79) and San Pedro de Huaca-Carchi (134.36). The correlations show relations with sociodemographic factors like poverty, ethnicity and scholarship. The CFR is the proxy indicator of COVID-19 impact in Ecuador and the analysis made by location give us new information about the specific impact of this disease. Over the period studied there was a total of 125383 DALYs for COVID-19. Males had greater DALYs (Mdn=5685.9; Range=6768.4) than females (Mdn=2834.4; Range=3728.3)  $U=24427451$ ,  $p<0.0001$ , Hedges'  $g=0.52$ . Higher burden of disease in those aged 60+. YLL had a geographic presentation with higher rates in the north and western Ecuador (global Moran's  $I=3.22$ ,  $p=0.0006$ ) and association with epidemiological factors as literacy, ethnicity and sanitation. The burden of COVID-19 in Ecuador measured with DALYs is higher than in other countries of the region showing a higher impact in certain populations with specific socio demographic characteristics. The research therefore aims to understand the clinical and epidemiological behaviour of COVID-19 in Quito-Ecuador in combination with the bioethical issues linked to the pandemic. It places this problem in the field of epidemiology and bioethics in health,

because it raises social, cultural and scientific issues on the presentation and integral management of health in a middle-income country. The reality of Ecuador's health system is still adapting to the reforms of 2008 with several problems arising in the middle and long term. It is evident that Ecuador has a technological heterogeneity on its health institutions, with concentration of specialized services and higher technology in the main cities increasing vulnerability of already vulnerable populations in terms of health effective and opportune access.

Results suggest recommendations for public authorities and policymakers, improve the efficiency regarding social security and universal coverage. Public hospitals need to adapt to a sudden increase in the beneficiaries and the effect on the efficiency might depend on the type of hospital where the resource is allocated. There is a need of formulating focused policies with public health ethical principles that encourage better resource allocation. Academics and authorities should identify the sources of improvement with strong policy recommendations to enhance the healthcare system.