

Identification of the Gamma variant in an outbreak of COVID-19 at a prison in Peru

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To the editor,

Prison inmates are highly vulnerable to COVID-19, due to overcrowding, poor ventilation and lack of access to drinking water in prisons¹. Prison and external staff are also at risk of infection, given that they are the first link in the chain of transmission and can transfer the virus to the community¹.

On April 30, 2021, the National Prison Institute of Peru (INPE) reported overcrowding levels in its prisons of 111%, where the 69 prisons in its charge with a capacity for 41,211 inmates in fact housed 86,825². This statement highlighted the need to meet the challenge of complying with preventive measures to deal with transmission and propagation of COVID-19 in prisons, which have turned into “breeding grounds” for further outbreaks, as reported in other countries³.

On August 13, 2021 the National Institute of Health (INS) was informed of an outbreak of COVID-19 amongst 36 inmates (18 with molecular tests and 18 with antigen tests) at a maximum security centre in Lima, Peru, after a number of them presented symptoms compatible with COVID-19. Officers of the Central Department of the INPE then went to the prison to carry out epidemiological research. Interviews were carried out with medical and administrative staff, who identified an index case: a 54 year old inmate who had had a cough, nasal discharge and fever since July 17th, and later the COVID-19 diagnosis was confirmed by a positive antigen test. It was also informed that 4.2% (n=91) of the total population of inmates (n=2171) are males over the age of 60 with some form of comorbidity such as diabetes

mellitus and/or high blood pressure, of whom only 6 were immunised against COVID-19. Six oligo-symptomatic inmates were in isolation and 1 inmate was receiving oxygen therapy. Incorrect use of face masks by inmates and overcrowding (1x3 metre dormitories for 3 persons with 1 window) were also observed.

The following actions were therefore recommended: reinforced infection and prevention control with hand washing, correct use of face masks and social distancing wherever possible. Access for external personnel (legal advisors) was restricted and the entire prison population (inmates and prison staff) was screened. Of the 2,186 persons screened, 242 showed positive for the molecular test, obtaining an attack rate of 11%.

The INS also carried out genome sequencing of the positive samples with a high viral load (n = 15). All of them were identified as having the Gamma (P.1) variant of concern, after testing with the Illumina COVIDSEQ genome platform. This variant possesses 3 mutations in the spike protein (S), K417T, E484K and N501Y, which enable it to evade the neutralising antibodies after a previous infection and/or vaccination⁴; while the V1176⁵ mutation could lead to a more severe disease. We were subsequently informed that all the inmates and prison staff were clinically stable.

According to the World Health Organisation (WHO)⁶, prison health is a public health issue that requires a greater approach from society and governments when faced with COVID-19. An important consideration is that persons in prison develop comorbidities earlier and more severely than in

the community, due to delays in diagnosis and treatment¹. Integrated health networks, health centres, public health institutions and prisons need to collaborate to deal with outbreaks of COVID-19 in penitentiary centres, respecting the human rights of all those who are affected, regardless of their legal condition. Finally, the INPE, with technical support from the Ministry of Health (MINSA), should take preventive measures to manage the introduction, transmission and dissemination of COVID-19 in prisons, in order to impede the collapse of the health system and to prevent infection from being propagated in the community, and also include inmates in COVID-19 vaccination programmes.

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