Comparison of five commercial kits for SARS CoV 2 RT-PCR diagnosis.

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BACKGROUND
SARS-CoV-2 was identified as the causal agent of the COVID-19 pandemic. Its rapid spread and huge health and economic impact prompted the development of diagnostic tests to opportunely identify affected individuals as a prerequisite to quarantine them and avoid further spreading the infection.

Methods
The following commercial RT-PCR kits, approved by our National Institute of Diagnostics and Epidemiological Reference of InDRE (from the Spanish name) were tested: Vircell (Granda, Spain), Light Mix Roche (Berlin, Germany), Logix Smart (Utah, USA), 1 Copy (Korea Republic), and RIDA GENE (Darmstadt, Germany). RNA was isolated either manually or automatically (QIAmp Viral RNA and SMART-32, DAAN GENE kits, respectively) from naso and oro pharyngeal swabs from suspicious individuals living in Mexico city and outskirts.

Results
Since May 2020, when we received InDRE´s SARS-COV2 diagnostic approval, we have processed nearly 20,000 naso and oro-pharyngel swabs samples. The qualification of kits, as per their analytical performance, value of their controls, and convenience (mono versus multiplex) resulted in the following ranking from the most to the least convenient: 1) RIDA, 2) Vircell, 3) Roche, 4) 1 Copy, and 5) Logix Smart.

Conclusions
Both, analytical performance and convenience to process quantious parallel samples in a short period of time, and particularly sensitivity, were key parameters for our laboratory to adopt either RIDA or Vircell kits. They are particularly useful in cases with low viral load, which even if asymptomatics, can be contagious for vulnerable subjects within their families, community, and at work.

Keywords: COVID-19, SARS-CoV2, RT-PCR TECHNIQUE.