Appendix A. Validation studies of the SD Biosensor Standard Q Covid Ag test

SD Biosensor Standard Q Covid Ag (SD Biosensor, Inc., Gyeonggi-do, Korea) [18, 19] is a rapid lateral flow chromatographic immunoassay for the qualitative detection of specific antigens to SARS-CoV-2 present in human nasopharynx. It provides results within 15-30 minutes that are evaluated by naked-eye.

Source	Country	Sample Size	RT-PCR positive % (n)	Sensitivity % (n)	Specificity % (n)
Berger A, et al. [2]	Switzerland	529	3.6% (191/529)	89.0% (170/191)	99.7% (1/338)
Linder AK, et al. [3]	Germany	289	13.5% (39/289)	79.5% (31/39)	99.6% (1/250)
Krueger LJ, et al. [4]	Germany/UK	1263	3.7% (47/1263)	76.6% (36/47)	99.3% (9/1216)
Cerutti F, et al. [5]	Italy	330	33.0% (109/330)	70.6% (77/109)	100.0% (0/221)
Sahar MK, et al. [6]	Egypt	100	80.0% (80/100)	68.7% (55/80)	95.0% (1/20)
FN Motol [7]*	Czechia	591	37.6% (222/591)	62.6% (139/222)	99.5% (2/369)
FIND [8]	Brazil	400	26.5% (106/400)	88.7% (/106)	97.6% (7/294)
Nalumansi A, et al. [9]	Uganda	262	34.3% (90/262)	70.0% (63/90)	92.4% (13/172)
Chaimayo C, et al. [10]	Thailand	454	13.2% (60/454)	98.3% (59/60)	98.7% (5/394)
Iglói Z, et al. [11]	Netherlands	970	19.2% (186/970)	84.9% (158/186)	99.6% (3/784)
Corman VM, et al. [12]	Germany	135	-	-	98.5% (133/135)
Salvagno GL, et al. [13]	Italy	321	46.4% (149/321)	72.5% (108/149)	99.4% (171/172)
Oh SM, et al. [14]	South Korea	118	33.9% (40/118)	17.5% (7/40)	100.0% (78/78)
Dinnes J, et al. [15] symptomatic	Meta analysis (64 studies)	-	-	88.0%	99.1%
Dinnes J, et al. [15] asymptomatic	Meta analysis (64 studies)	-	-	70.0%	99.1%
Van Honacker E, et al. [16]	Netherlands	4195	8.8% (369/4195)	54.2% (200/369)	99.7% (3814/3826)
Homza M, et al. [17]	Czechia	139	30.2% (42/139)	61.9% (26/42)	99.0% (96/97)
Average				72.1%	98.6%
Median				71.6%	99.3%

Table A: Validation studies of the SD Biosensor Standard Q Covid Ag (SD Biosensor, Inc., Gyeonggi-do, Korea) test [18] also distributed by Roche [19]. *Test #2 in the validation study is SD Biosensor Standard Q Covid Ag test. The sample tested in the mass testing in Slovakia may significantly statistically differ from the validation studies samples.

Appendix B. Additional mitigation measures imposed during mass antigen testing in Slovakia and specifics and limitations of tests and testing procedure

All individuals with positive test results were ordered to isolate for 10 days with their whole households. All persons with negative test results in the pilot, and in Rounds 1-2 of mass testing were issued an official certificate that allowed them to avoid some of the strict measures enforced during the following 7-day period (or 14-day in counties without the second testing round). During the period all persons without a confirmation of a negative antigen test or a recent real time quantitative negative polymerase chain reaction (RT-qPCR) test were subject to a mandated isolation. They were allowed to leave their household only during the night (01:00-05:00 am), or to leave their household to take a RT-qPCR or an antigen test, to visit the nearest grocery store or a pharmacy, or to get medical care. They were also allowed to provide assistance and personal care for their close persons or livestock, to walk pets up to 100 meters away from their household, and to attend a funeral. Those with negative tests were in addition allowed to travel to work, accompany their children to school, to visit post offices, insurance companies, drycleaning, car repair shops, and petrol stations. They were allowed to spend time in nature within the counties of their residence outside of urban areas.

More details on extent and timing of mitigation measures during testing and testing procedures can be found in [20].

Tests were administered at temporary set testing stations. They were staffed by volunteers, each testing team included among others two medical professionals who collected samples and evaluated tests and one member of the army forces who coordinated testing locally and reported the data to the army regional headquarters for data collection. Testing stations were located both indoors and outdoors, a minority of testing stations were drive-through.

According to the test package leaflet “the test is for administration by healthcare workers and labs only, as an aid to early diagnosis of SARS-CoV-2 infection in patients with clinical symptoms with SARS-CoV-2 infection. It provides only an initial screening test result... The result of this test should not be the sole basis for the diagnosis; confirmatory testing is required” [18]. During the mass testing in Slovakia test results were not confirmed by other laboratory diagnostics and most of the tested individuals were asymptomatic.

The manufacturer also recommends that the tests are at room temperature prior to sample collection. However, during the mass testing, many testing stations were for epidemiological reasons located in outdoor settings and the temperature at many testing stations was under the CDC recommended room temperature (15-30°C) before use [21]. The sample collection was performed by volunteer medical personnel that did not receive any specific training on how to perform the pharangonasal swabs. Also no specific training was provided for an evaluation of the tests. Also 20 Euro risk compensation was paid to staff collecting the sample for each positive test, however, the test was evaluated by a different member of the testing team that did not receive any risk compensation.

The test data do not contain information on individuals tested outside of their area of the residence in Rounds 1 and 2 and they may also contain duplicities caused by individuals tested repeatedly within one round. The relation between test positivity in individual rounds is also influenced by the local speed of epidemic growth. The local effective reproduction number may significantly contribute to the relative change of the test positivity between two rounds. This factor prohibits a simple interpretation of the reduction of the infected in the population by the mass testing effort.

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