

State Comptroller Of Israel | Special Report: The State of Israel's Coping with the Covid-19 Pandemic | 2021

Welfare, Education, Health and Employment Topics

Sampling and Lab Testing Setup for Diagnosing Covid-19



Sampling and Lab Testing Setup for Diagnosing Covid-19

Background

The covid-19 pandemic that started in February 2020 and continued during the audit has already claimed many victims in Israel and worldwide. The covid-19 is very infectious, and it is essential to diagnose infection with the virus as soon as possible to break the chains of transmission swiftly. Diagnosing infection is done by taking a sample from the throat and nostril of the examinee (sampling). There is of great importance to shorten the time it takes between sampling and receiving the results of the Covid-19 test since this factor dramatically influences the possibility of breaking the chains of transmission and eradicating the pandemic. Sampling and lab testing is the first stage in breaking the chains of infection.

In October 2020, the State Comptroller issued a report on the sampling and lab testing setup for diagnosing Covid-19. Since the report's release, authorities have been transferred between bodies, and specific components in operating the setup have been assigned to entities in the private sector.

The height of the pandemic was in January 2021, with daily new infections reaching 10,000 confirmed cases. However, in April – June 2021, there was a sharp decline in the infection rate, with everyday new infections dropping to tens of confirmed cases only. Towards the end of June 2021, infection was resurged, and in the second half of August 2021, daily new infections exceeded 8,000.

Sampling and Lab Testing Setup for Diagnosing Covid-19

Key figures

Approx. 820,000 people

were confirmed as infected in Israel from the outbreak of the pandemic at the end of February 2020 until mid-March 2021



end of February

2020 until mid-

March 2021

13%

Approx.

NIS **2.8** billion

the sampling and testing cost estimate from the outbreak of the pandemic at the end of February 2020 until mid-March 2021

40 labs

underwent validation and were approved by the Ministry of Health for Covid-19 testing

110,000 tests

daily Covid-19 testing capacity of the labs in Israel by the end of the audit in March 2021

the highest positive testing rate during the audit period was found in the Jerusalem District, among the ultraorthodox (Haredi) population; also in the South and Central Districts, the highest positive testing rate was found among the Haredi population -7% to 11%, respectively

Approx. 6,400 people

died of Covid-19 in Israel since the outbreak of the pandemic in February 2020 until May 12, 2021

15.1% and **0.1%**

15.1% was the highest positive testing rate, on September 28-29, 2020; 0.1% was the lowest positive testing rate, on May 11, 2021

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Audit Actions

Q From November 2020 to March 2021, the State Comptroller's Office examined the Covid-19 sampling and lab testing setup, including the state of the setup following the changes made in real-time. Among them: the periods required for sampling and testing; Health Ministry figures on waiting times (service levels) for sampling and lab testing processes; Home Front Command figures on sampling and lab testing; contracting with a private consultancy firm for the management and operation of the sampling and lab testing setup; purchase and process of rapid Covid-19 diagnostic devices; Covid-19 testing of incoming and outgoing travelers in Ben Gurion Airport and genome sequencing testing to identify mutations (variants) of the virus. Likewise, the State Comptroller's Office surveyed 525 persons tested for Covid-19, selected at random from a representative national sample, to assess waiting times at Covid-19 sampling centers from the public's perspective and satisfaction with the service experience in Covid-19 testing (the survey). The audit was carried out in the Ministry of Health, Ministry of Finance, Ministry of Defense, Magen David Adom, the Home Front Command via its center for cutting the chains of infection (Alon Coronavirus Command Center), four HMOs (health maintenance organizations), and the Israel Airport Authority. Additional clarifications were made at the private laboratories.

Key findings

- Consistency between time goals and the time set by the Health and Defense Ministries and the Home Front Command – Inconsistency was found between targeted time between sample collection and delivery of lab test results determined by the Health and Defense Ministries (as stated in the agreements with the sampling company and with the private laboratories) – up to 24 hours – and the targets presented in the Covid-19 situation assessments issued by the Covid-19 Control Center, where the same ministries delegates collaborated – up to 18 hours.
- Supervision of waiting times for sampling From November 2020 until the audit end date, the Home Front Command, Ministry of Defense, and Ministry of Health did not supervise the waiting times for sampling; data were neither measured nor gathered and thus could not be analyzed. This signifies that the tender conditions regarding waiting times were not enforced.

- Service levels¹ at the sampling centers according to the participants of the survey conducted by the State Comptroller's Office:
 - The average waiting time for the three months covered by the audit examination (November 2020 to January 2021) as estimated by the survey's participants was 37 minutes, which is longer than the time stipulated for this process in the tender conditions – 25 minutes. At least 29% of the survey participants believed that the time exceeded 25 minutes, while 18% stated that the time was longer than an hour.
 - 2. Some 29% of the survey participants who were tested at the "Test & Go" compounds felt that no proper distance was maintained between those waiting in the queue at the sampling compounds to prevent the continued spreading of the virus. According to the estimate of tested individuals, waiting time on weekends was longer than on weekdays (43 minutes versus 35 minutes).
 - 3. According to the estimate of tested individuals, the waiting time at the "Test & Drive" compounds was longer than at the "Test & Go" compounds. As to prescheduling an appointment, tested individuals felt that waiting time after scheduling an appointment in advance was shorter and more reasonable.
- Ministry of Health data on the service levels of the sampling and lab testing processes – By the audit end date, the Health Ministry's figures for the waiting times from sample collection until delivery of test results are unreliable. Therefore, these could not be a basis for mapping and analyzing the process times and making decisions accordingly.
- Home Front Command data on the service levels of the sampling companies, HMOs, and private laboratories – According to Home Front Command figures, in November 2020, some 825,000 samples were collected by the HMOs, of which 59% met the target of 18 hours from the time of taking the sample until delivery of the test result. In January 2021, some 1.7 million samples were collected, of which 46% met the target. Therefore the increase in samples collected increased failure to meet the targets set.
- Congruence between the rate of sample arrival at the laboratories and the ability to perform tests on the samples The agreements of the Health and Defense Ministries with the sampling companies were made without analyzing the sampling and testing process as one ongoing process. The SLA² defined in the tender for taking samples is the time between sample collection and sample arrival at the lab; however, the rate of sample arrival at the labs was not determined. This led to situations

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¹ Service levels are defined in the framework of the Service Level Agreement (SLA).

² Service Level Agreement.

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like heavy arrival load at the labs – a "bottleneck" that impeded finishing the tests by the prescribed time or idle lab equipment due to the non-arrival of samples.

- Problems with the transfer of samples The audit found cases of delayed sample transfer to the laboratories and sample arrival at the laboratory without documentation in the information systems. Additionally, there were cases where the HMOs took samples beyond their capacity to overcome the expected delay at their laboratories. They transferred the excess tests to private laboratories that were not supposed to test them.
- Automatic interface for transferring data to facilitate the management, control, and monitoring, for coordinating between the sampling process and testing process The audit found that as of January 10, 2021, there was no orderly interface automatically operated for continuously transferring data between the sampling system and the testing system, and that the data was transferred via Secure Virtual Safes (SVS)³. This method requires proactive actions to "push data" from one body into storage in a safe and "pull data" by the other body.
- Extensions of an engagement with a private consulting firm The Ministry of Health issued a tender for the operation of the sampling and testing system in December 2020, that is, some eight months after the date of original engagement, even though it undertook to put a tender before the Tenders Committee in the framework of the original engagement entered into in May 2020, and for which undertaking, it received approval to enter the engagement without a tender. Issuing the tender eight months after the original engagement led to four more extensions of the engagement. It should be noted that the Health and Defense Ministries put out in 2020 several other tenders for operating the sampling and testing system in shorter than four months. In addition, on one of these occasions, the Chief Accountant of the Ministry of Health approved the extension of the engagement without receiving authorization from the Senior Deputy Accountant General. It was further found that the engagement with the private consulting firm, including the extensions, was done without an agreement being signed between the firm and the Ministry of Health.
- SOFIA rapid covid-19 testing devices Out of 300 SOFIA fast testing devices acquired at the cost of USD 900,000 (around NIS 3.69 million) and arrived in Israel, some 150 were not deployed. Of the devices deployed, only some 30 are active on an ongoing basis and have provided, as of the audit end date, only 1,900 tests per day.
- Identification of mutations in the virus By the audit end date, several mutations have been identified in the world and Israel. It was found that the Ministry of Health has not yet drawn up a procedure for regulating the genome sequencing process: when should the process be performed, what samples should undergo sequencing and what size sample is needed, which laboratory will do the sequencing, what is the service level

³ Secure Virtual Safe (SVS) – An application designed to provide a secured, user-friendly way to store, access, organize and share files and information.

(SLA) for performing sequencing, how to track samples designated for sequencing, how should genome sequencing results be reported to the Ministry of Health, etc. Any appearance and identification of a mutation raise concerns over an upsurge in infection rates, the risk to particular populations, and the ineffectiveness of existing vaccines.

The increasing trend in the number of Covid-19 tests – During the Covid-19 pandemic, the number of tests performed in Israel rose from approximately 70,000 in March 2020, the first month after the virus outbreak, to a peak of 2.7 million in January 2021.

Key recommendations

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- It is recommended that The Ministry of Health and Home Front Command analyze the waiting times at the sampling compounds to determine the reasons for noncompliance with the requirements laid down in the tender and to draw lessons accordingly. This in order to continue the sampling system from a forward-looking perspective, and for the benefit of other operating processes where it is significant to keep timetables in general and vis-à-vis a large-scale population in particular. Likewise, the said bodies should carry out online control and monitoring procedures in such processes and assess the satisfaction of tested individuals with the service they received at the sampling compounds to optimize the service.
- It is recommended that The Health Ministry regulate the interfaces between the sampling system and testing system and between them and the Ministry's systems. It should also incorporate a tracking and control mechanism into the data transferring processes between the systems to monitor the data and verify their reliability. In addition, regulation of the interfaces should be made in conjunction with the Defense Ministry and Home Front Command, which deals with the management of the sampling and testing system and with the system's engagements.
- It is recommended that The Health Ministry examine, in conjunction with the Defense Ministry and Home Front Command, which part of the sampling and testing system should continue to be operated, preserved, and maintained so that it can be activated in times of need, for example – in the event of an outbreak of an epidemic or wide-scale contamination of drinking water.
- It is recommended that The Health Ministry draw lessons from going to tender for the operation of the sampling and testing system and consider putting out a public tender for operating the sampling and testing system in a routine period so that it can be activated in a time of emergency.

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It is recommended that The Health Ministry draw up a procedure for regulating the genome sequencing process (detection of virus mutations) and assimilate it in laboratories' work. The Ministry should also define the way for integrating the work of the central laboratory with the other public health laboratories spread throughout the country and assess the need for adapting the infrastructures of all the labs to genome sequencing. It is further recommended that the Ministry continuously monitor the development of mutations worldwide for early diagnosis and identification of their infiltration into Israel and the development of mutations in Israel.

Number of tests performed in Israel since the pandemic outbreak until May 2021 (16 months) (in thousands)



Summary

Since February 2020, the State of Israel in general and the health system, in particular, have been contending with the Covid-19 pandemic. Management and operation of the sampling and testing system, which is vital to dealing with the pandemic and breaking the chains of transmission, is being handled by bodies from various disciplines – healthcare, national security, R&D, etc. According to Health Ministry figures, from the pandemic outbreak until mid-March 2021, some 14 million Covid-19 tests have been performed in Israel, at an estimated cost of over NIS 2.8 billion.

An audit on the sampling and lab testing processes raised the following deficiencies: lack of complete data at the Health Ministry on waiting times from sample collection until receipt of test results; delay in the transfer of samples to the labs; problems with the transfer of samples from the sampling entity to the lab-testing entity; coordination problems among the various responsible bodies; irregular operation of organized automatic interfaces for intersystem data transfer; and absence of an automated mechanism for the control and monitoring of data transfer from the sampling stage to the testing stage.

The Health Ministry, Defense Ministry, and Home Front Command should act to rectify the deficiencies raised in this report and consider implementing the recommendations. In this regard, it is recommended that they consider which part of the sampling and testing system set up should continue to be operated, preserved, and maintained so that it will be possible to operate it as the pandemic persists and in times of need, for instance – in the event of an outbreak of an epidemic or wide-scale contamination of drinking water.