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Clinical Investigational Plan

Feasibility study of scent technology for screening of subjects suspected of being infected with Coronavirus (SARS-CoV-2)

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1. Content

Contents

1. Content 2
2. Protocol's Summary 3
3. Literature Review 10

2. Protocol's Summary

Introduction and Rational for Conducting the Study:	The corona virus (SARS-CoV-2) was recently discovered in December 2019 in Wuhan province of China and belongs to a family of viruses that cause respiratory symptoms of varying degrees of severity in infected patients. The virus is characterized by rapid spread and causes corona disease (COVID-19), which often requires hospitalization, intensive medical care, and the use of medical equipment that may be limited in its availability due to the huge scope of the infection spread. During the current global epidemic, the spread rate of Coronavirus has increased significantly with more than 300,000 infected worldwide and over 13,000 deaths as of March 22, 2020. The epidemic is spreading at a rapid rate, also due to a limitation in the ability to identify patients who carry the virus, since a large proportion of the carriers do not have any symptoms of the illness or have only minor symptoms. To date, there is no quick and effective way to test large groups of people in order to isolate people for whom there is greater concern about being sick/infectious. NanoScent has developed the Nanoscent Scent Recognition System (NSR) as an odor-based diagnostic tool that enables speedy screening testing for large population groups and consequently significantly reduce COVID-19 proliferation and reduce health and economic damage. In this study, an initial assessment of the NSR system to diagnose patients in Corona will be performed. During the study, the system's distinguishing ability will be tested while training the algorithm and improving its accuracy.
Study's purpose and endpoints:	<u>Study's Purpose:</u> An initial assessment of the NSR system to diagnose patients in Corona will be performed. During the study, the system's distinguishing ability will be tested while training the algorithm and improving its accuracy. <u>Primary Endpoint:</u> • Sensitivity assessment (%) of the NSR system to identify positive participants for infection with SARS-CoV-2 from all subjects found positive for other infection. A sensitivity value of ≤ 85% is set as the target.

	• Specificity assessment (%) of the NSR system in identifying negative participants for infection with SARS-CoV-2 out of all subjects found negative for other infection. A specificity value of ≤ 85% is set as the target. Secondary Endpoint: • Characterization of unique scent patterns that typify SARS-CoV-2 infection • Characterization of sensors that are highly sensitive to substances present in the breath of people who are positive to the corona Exploratory Endpoints: • Identifying matches between odor patterns and different varieties and types of viruses
Study's Structure:	The study is a double-covert, and multi-site study for initial assessment and enhancement of the NSR system's ability to identify positive/negative subjects for corona virus infection (SARS-CoV-2). The study will be conducted at several sites in Israel and will include subjects who are suspected or known to be patients in COVID-19. The study will be conducted at several sites in Israel and will include subjects who are suspected or known to be patients in COVID-19. Patients who are hospitalized or subjects who have come to emergency medical centers or other sites that are coordinators of the subjects suspected of illness, will be asked to sign a consent form before performing any research procedure. After signing, the patient's characteristics will be examined for matching, and if found suitable, the subject will be required to provide a sample (exhale) for testing on the NSR instrument in parallel with the standard diagnosis performed on the same site, such as PCR using a swab. No medical intervention is required during the taking of the respiratory sampling. Also, the results of the respiratory sampling will neither be disclosed to the participants, nor will it affect the continuation of the treatment they receive. Apart from the samplings, the subjects will be requested to provide additional, as detailed as possible information of demographics, medical history, treatments and background medicines, dietary habits, smoking, alcohol consumption, supplements, exercise and so on and so forth.
Inclusion and Exclusion Criteria:	Inclusion Criteria: 1. Male and Female between the ages of 18 to 80 (inclusive)

	2. A known or tested patient who was suspected to be a COVID-19 patient by the medical team at the study site 3. The subject has undergone or is intended to undergo a test to determine the infection/non-infection of the virus using standard precision methods such as PCR 4. People who can understand the study's requirements and who gave their consent to participate in it Exclusion Criteria: 1. Subjects or patients who, in the researcher's opinion, may have an allergic reaction to one or more parts of the device being tested 2. Subjects or patients who are addicted to drugs or alcohol 3. Subjects or patients who have undergone significant medical procedures in the past two months, such as: surgery, chemotherapy, radiation therapy, and in the researcher's opinion, their inclusion may adversely affect their recovery 4. Subjects or patients taking part in another study 5. Subjects or patients who, in the opinion of the researcher, are unable to give a nasal respiratory sample and/or follow the research guidelines Reference to the Inclusion of Special Populations: Subjects may be recruited from the medical center staff who meet the criteria and are not part of the research team
Study's Population:	The study is expected to include up to 1400 subjects, however, the recruitment will cease as the system achieves the specified accuracy levels. The study population will include male and female participants ages 18 to 80 (inclusive), who belong to one of the following groups: Group A - Participants who are asymptomatic or participants who are symptomatic with COVID-19 (such as fever, shortness of breath, cough, etc.), who have come to urgent medical centers or other designated places to which patients suspected of contracting the disease are coming to, and whose medical team has decided to take sample for viral analysis with a suspected COVID-19 infection.

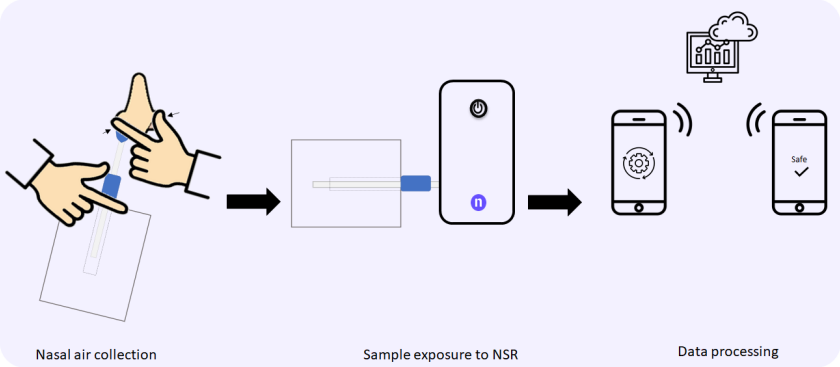
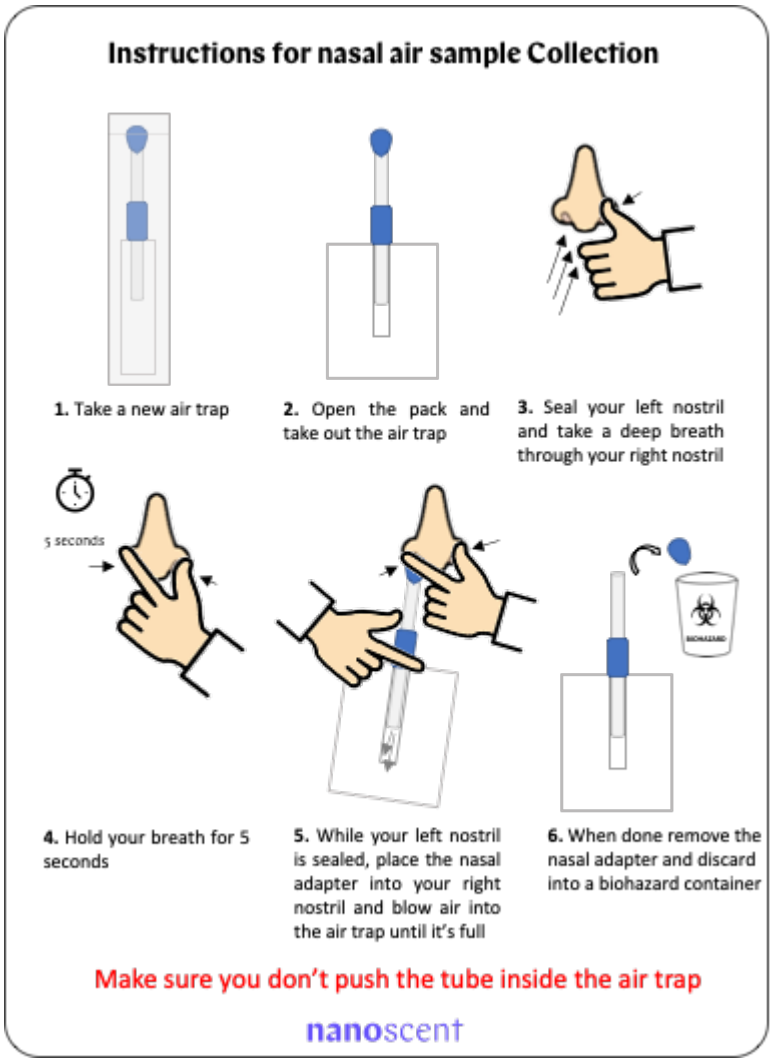
	Group B - Patients who are hospitalized in one of the hospital's wards after being diagnosed with COVID-19 patients and identified as positive for infection by standard methods.
The Sampling and Measurement Process in the System:	Sampling Collection: The entire process is described in the figure below:  A sample will be taken from each participant for analysis in the NSR system. 1) The participant will receive a nasal air sampling collection bag and a tube. 2) The research team will guide the participant as follows: • The participant will be asked to shut his left nostril with his finger. • The participant will be asked to inhale through his right nostril. • The participant is asked to shut his right nostril and close his mouth for about 5 seconds. • The participant must now open his right nostril and insert the nasal air sampling collection bag's spout into it. • The participant must seal with his finger and thumb his right nostril on the bag's spout (to make sure no air escapes) while continuing to shut his left nostril. • The participant should exhale air through his right nostril into the collection bag (approximately 900 ml, the equivalent of two disposable cups) until it is filled.

Illustration of nasal air collection is described in the figure below:

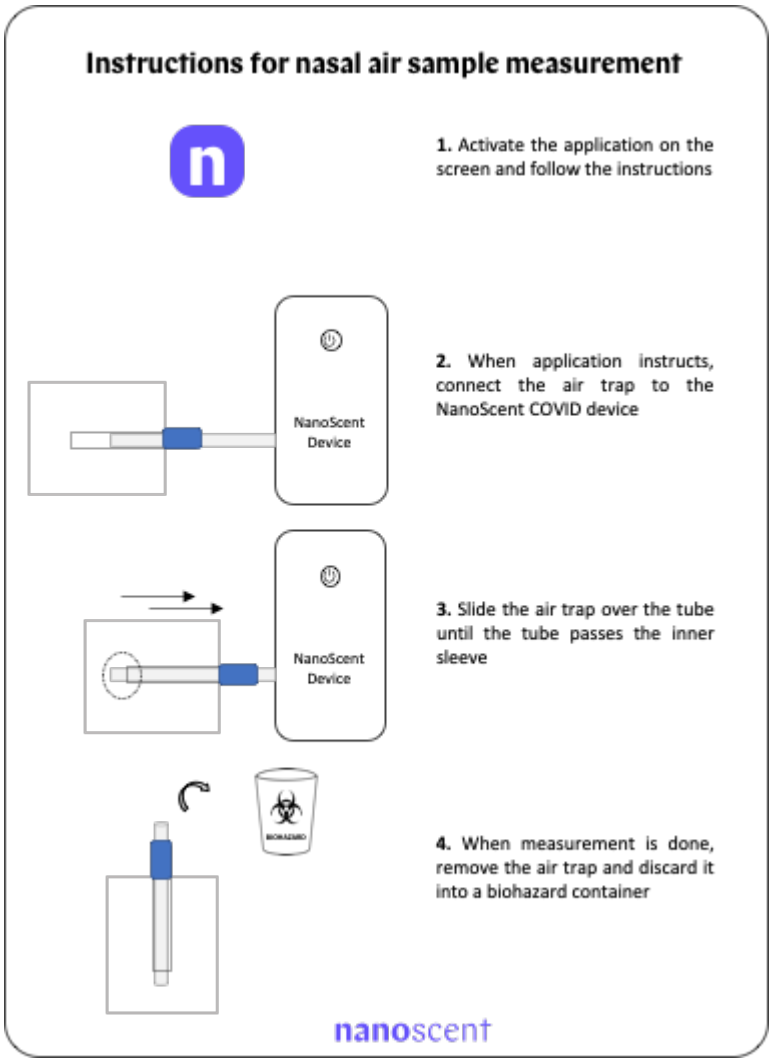


Measurement of Sample by the NSR System:

Sampling shall be carried out using the NSR system, which shall be placed in an isolated compound within a box and carried out by the participant himself. The research team member will oversee the proper execution of the following instructions:

- The participant will connect the tube to the designated connector in the box.
- The participant will then be asked to insert the tube into the bag, all the way in (see below instructions).

Illustration of nasal air sample measurement is described in the figure below:



Emphasis:

- Note that the tube goes deep enough to exit the inner sleeve.
- The collection bag will lose some of its volume, be careful and do not to press on it.
- The participant must stay close until the end of the process in order to detach the collection bag from the scent reader.

- The researcher goes to the computer and runs the application, that is open on the desktop in advance, and updates the app with the identifiable code, that was provided to the participant.

	• The researcher presses the start button and patiently waits for it to finish (takes about 90 seconds). • At the end of the measurement, the participant must disconnect the tube from the rubber band and discard the collection bag and tube in a biowaste bin. No disinfection is required between samples exposed from different people, as patients do not have direct contact with the scent device, and the device itself performs self-calibration in between the samples.

3. Literature Review

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