RHINOSWAB
by RHINOMED

NOW **FDA** REGISTERED

AN EASIER, MORE COMFORTABLE WAY TO SWAB

FOR RESPIRATORY VIRUSES

DESIGNED FOR

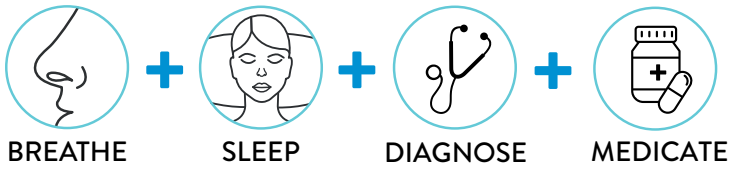
- Patient comfort
- High-yield sampling
- Easy, reliable supervised self-collection
- Existing pathology workflows and collection tubes

SUPPORTS

- Willingness to get tested (repeatedly)
- Test accuracy
- Rapid sampling at mass
- Healthcare worker safety
- Local supply of high-quality swabs

RHINOMED: A WORLD-LEADING DEVELOPER OF NASAL AIRWAY TECHNOLOGY

- Rhinomed is an Australian-based medical technology company that specializes in wearable nasal technology as a novel way to address problems with breathing, sleep and nasal congestion (e.g. due to sleep apnea, allergy, colds and flu)
- Our existing FDA and TGA registered nasal products have been worn comfortably and safely since 2016, with 1.2 million users registering over 30 million positive user experiences[1]
- We continue to invest in furthering our knowledge of the role played by the nose, upper airways and olfactory system in maintaining health and wellness, with our product pipeline now extending to sampling, diagnostics and nasal drug delivery



RHINOSWAB: AN INNOVATIVE SPECIMEN COLLECTION METHOD USING A PROVEN PLATFORM

- In response to the COVID-19 pandemic and the World Health Organization's call for innovative solutions and manufacturing support from industry, Rhinomed applied its deep expertise in nasal airway technology to help address the global swab supply shortage
- Through innovative modifications to our existing, proven nasal technology platform, we developed RHINOSWAB, a safe, effective alternative to current standard of care (SOC) swabs[1]
- RHINOSWAB's novel design also enabled us to address key limitations with the current SOC:

SMALL LOAD CAPACITY AND LIMITED LOADING TIME
May result in low sample yields, which can present an issue in the setting of a low viral load or viral assays with a high limit of detection (LoD)

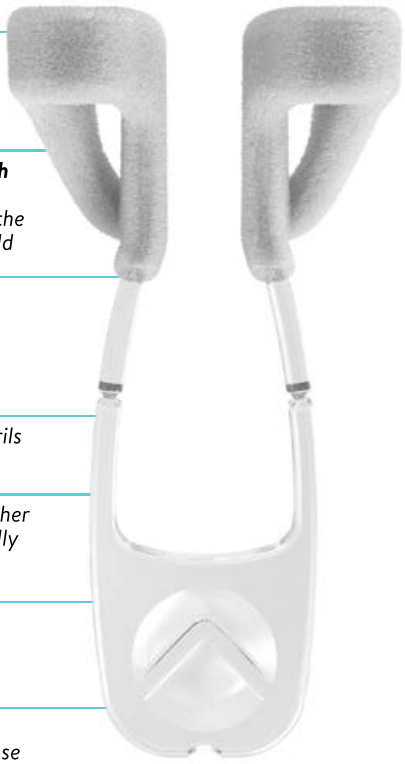
PAIN/DISCOMFORT ASSOCIATED WITH NASOPHARYNGEAL (NP) SWABS
May contribute to a fear of testing and reluctance to get tested

INFECTION RISK TO HEALTHCARE WORKER (HCW)
Close proximity to patient and risk of sneezing, gagging or coughing during sample collection compromises HCW safety

NEED FOR SKILLED HEALTHCARE WORKER TO CONDUCT OR SUPERVISE ALL SAMPLE COLLECTIONS
Increases the burden of testing on the healthcare workforce and personalized protective equipment (PPE) utilization

A NEW ERA IN SWAB TECHNOLOGY[1]

Standard nasal swab	VS	RHINOSWAB
Variable placement *within nose including anterior nares, mid-turbinate (deep nasal) and nasopharynx; latter can cause pain, discomfort and sneezing*		***Sits*** *comfortably within low-mid nasal turbinates for pain-free sampling*
Non-anatomical shape and small surface area *of 'bud' tip limits contact area with nasal mucosa and sample yield*		***Anatomically designed 'loop' tip with large surface area*** *mimics shape of nose to maximize contact area with the nasal mucosa, optimizing sample yield*
Composition varies *by manufacturer and specimen site, e.g. full-sized or mini-tip made from flocked nylon, round foam or spun fiber (rayon, polyester)*		***Nylon-flocked loops*** *for reliable sample uptake and release (latter further supported by hydrophobic treatment of loops)*
Two insertions *required to sample both nostrils*		***Two-pronged swab*** *means both nostrils can be sampled simultaneously*
Long, flexible shaft *can lead to 'overshooting' and 'brain stab' discomfort*		***Short arms*** *ensure swab goes no further than the low-mid turbinates when fully inserted, irrespective of nose size*
Break-point *enables tip to break off and fit into standard pathology vial*		***Break-point*** *enables loops to break off and fit into standard pathology vial*
Pencil grip and head tilt *required to handle and position tapered shaft*		***Handle with 'thumb print'*** *allows for easy, error-free positioning within nose by patient or healthcare worker at any angle, which standardizes the sampling process*



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EXPERT OPINION

LEADING BODIES AGREE ANTERIOR OR MID-TURBINATE (DEEP NASAL) SWAB IN ISOLATION IS AN ACCEPTABLE SPECIMEN COLLECTION METHOD FOR DETECTION OF SARS-CoV-2

According to several recent peer-reviewed studies that have compared nasal swabs to NP or OP swabs, self-collected nasal swabs (supervised or at-home) represent a reliable alternative to NP/OP swabs collected by healthcare workers for the detection of SARS-CoV-2.[2–5]

Based on this evidence, both the US CDC and the FDA have approved self-collected nasal sampling (supervised or at-home) as an acceptable specimen collection method for SARS-CoV-2 testing.[6,7]

The Office of the Assistant Secretary for Health from the US Public Health Service reports:[8]

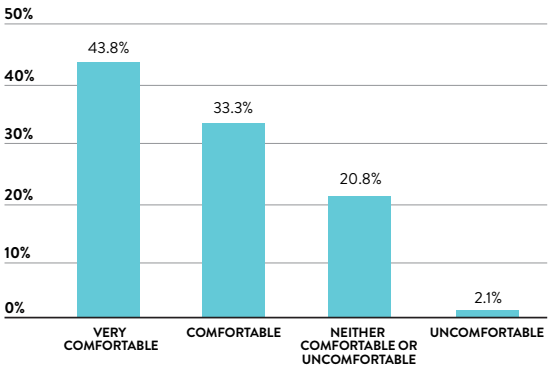
- Nasal sampling is less invasive and results in less patient discomfort than sampling from other upper respiratory sites
- A self-administered nasal swab is similar to a NP swab in detecting coronavirus
- Collection of nasal swab specimens is less technically complex, so can reduce the risk of the spread of infection to healthcare providers, by reducing the duration of the procedure, and allowing the patient to perform self-collection while under supervision
- Nasal sampling also reduces PPE utilization, given that the patient can perform self-collection under supervision (versus the health care provider performing the collection).

> *"[Getting a swab test for COVID-19] is not comfortable, I'll just be honest."*
>
> **Dr Jayant Pinto**, otolaryngologist, University of Chicago Medicine[9]

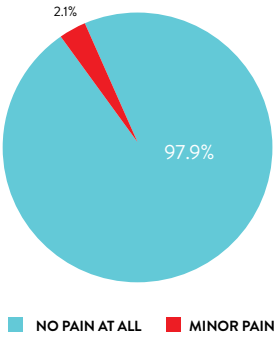
SUPERIOR COMFORT DELIVERS HIGH PATIENT ACCEPTABILITY[1]

- In a usability survey conducted by Rhinomed:[1]
  - **97.9%** of participants reported NO discomfort or pain when using RHINOSWAB
  - **77.1%** of participants described RHINOSWAB as comfortable or very comfortable to use

COMFORT LEVEL n=48



PAIN OR NO PAIN n=48



RHINOSWAB'S 'COMFORT FACTOR' MAY HELP REDUCE TESTING FEARS, OVERCOMING RELUCTANCE TO GET TESTED

Anecdotal reports indicate that some individuals avoid or delay testing due to the pain/discomfort that may be experienced with traditional swabs.[10]

The superior comfort of RHINOSWAB has the potential to improve patients' willingness to undergo testing, thereby enhancing viral testing rates.

RHINOSWAB IS A SAFE ALTERNATIVE TO STANDARD OF CARE SWABS[1]

- There have been no adverse outcomes associated with RHINOSWAB to date, other than occasional light nasal spotting when the swab is removed[1]
- There are no specific contraindications for collecting samples with RHINOSWAB. However, similar to all other swabs,[11] clinicians should be cautious if the patient has had recent nasal trauma or surgery, has a markedly deviated nasal septum, has a history of chronically blocked nasal passages or severe coagulopathy, or is taking anticoagulant therapy
- RHINOSWAB's positioning in the low-mid nasal turbinates reduces the likelihood of sneezing during sample collection and avoids the risk of coughing/gagging that comes with NP/OP swabs. This mitigates the risk of aerosol generation at time of sampling, decreasing the infection risk to any healthcare workers in attendance[3,12,13]

RHINOSWAB'S VIRAL LOAD TRANSFER COMPARABLE TO STANDARD OF CARE[1]

- A SARS-CoV-2 spiked study, conducted at the Victorian Infectious Diseases Reference Laboratory (VIDRL) at the Peter Doherty Institute for Infection and Immunity, evaluated the efficacy of RHINOSWAB in transferring a viral load for testing compared to a commercially available standard flocked swab (Copan ESwab™)[1]
- The study found that there was no difference between the two swabs in the mean cycle threshold (Ct) value for detecting SARS-CoV-2 at both low- and high-burden viral loads[1]

	RHINOSWAB	ESwab™
Ct 30 mean ct value low burden viral load	29.5	29.4
Ct 26 mean ct value high burden viral load	26.4	26

- The study also concluded that the eluted volume from RHINOSWAB was comparable to the Copan ESwab™ at both viral load levels[1]

SARS-CoV-2 DETECTED WITH 100% ACCURACY WHEN rt-PCR TEST APPLIED TO INFECTED RHINOSWAB SAMPLES[1]

- In this study, the spiked swabs were tested using reverse transcription-polymerase chain reaction (rt-PCR)[1]
- Both RHINOSWAB and the Copan ESwab™ reported 100% accurate diagnosis of SARS-CoV-2[1]

RHINOSWAB works seamlessly with existing pathology workflows, transport media and collection tubes.

RHINOSWAB IS SUITABLE FOR USE ACROSS A RANGE OF CLINICAL AND NON-CLINICAL SETTINGS[1]

Collection by a healthcare worker or supervised self-collection in a clinical setting

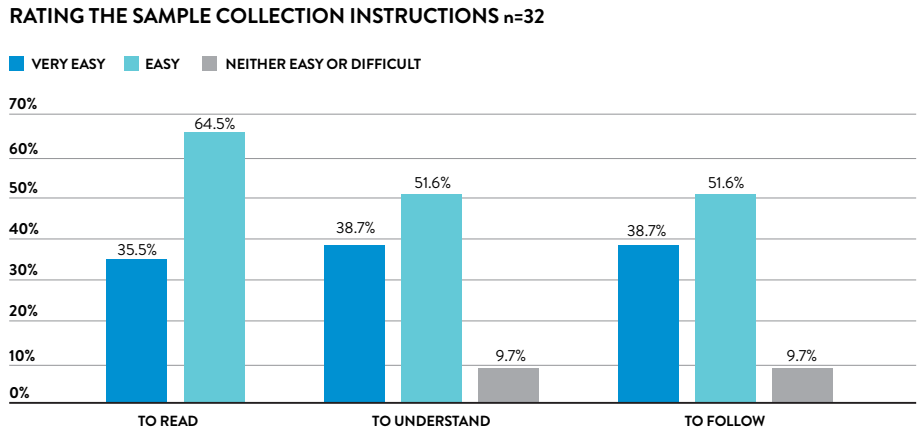
- **COVID-19 testing clinics**
- **Hospitals**
- **GP clinics**
- **Pathology centers**

Self-collection in a non-clinical setting (where local guidelines permit)

- **At work, especially in high-risk occupations requiring high-frequency testing, e.g.:**
  - FACTORIES
  - ABATTOIRS
  - AIRLINES
- **At place of study, e.g.:**
  - UNIVERSITIES/COLLEGES
  - SCHOOLS
- **At home**

SELF-COLLECTION WITH RHINOSWAB IS EASY AND PROVIDES CONSISTENTLY RELIABLE SAMPLES FOR TESTING[1]

- In the RHINOSWAB usability study, the majority of participants found the device easy to use as part of a self-collection kit for viral testing[1]



- RHINOSWAB's novel design standardizes its insertion and placement within the nose, facilitating quality sample collection, no matter the user group[1]
- In a study of swab collection for influenza testing, the majority of participants preferred self-collected swabs over those collected by healthcare workers, with no statistical difference in detecting the virus[15]

RHINOSWAB CAN HELP HEALTH SERVICES MAXIMIZE TEST ACCESS IN THEIR COMMUNITY WHILE LOWERING THE BURDEN OF TESTING ON THEIR WORKFORCE[1,3]

- Since self-collected nasal swabs are comparable to professionally collected swabs,[2-5] RHINOSWAB is ideal for:
  - Pathology providers wanting to offer patients or corporate customers the convenience of fast, easy and comfortable self-collection (supervised or at-home) – particularly where there is a need for large groups of employees to be repeatedly tested
  - Hospitals/health services who see benefit in replacing the current SOC with a swab that offers patients a more comfortable sampling experience, with the aim of increasing viral testing rates
  - Hospitals/health services transitioning to supervised or at-home self-collection to increase test access and/or reduce infection risk to HCW and PPE utilization

IN PRACTICE: **LABORATORY CONSIDERATIONS**

RHINOSWAB FITS WITH YOUR EXISTING PATHOLOGY WORKFLOWS AND STANDARD rt-PCR COLLECTION VIALS

- RHINOSWAB does not require any change to your pathology workflows and can be immediately integrated with your existing transport media and collection tubes
- RHINOSWAB can be included in your self-collection kits, with easy-to-follow written and video instructions
- RHINOSWAB samples are also suitable for many rapid antigen tests that can accommodate RHINOSWAB's unique design

IN PRACTICE: **PROCUREMENT AND SUPPLY**

RELIABLE SUPPLIER, COMPARABLE PRICING[1]

- Medical grade quality (including gamma-ray sterilization); polycarbonate handle with flocked nylon tips
- Comparable price to standard of care swabs
- FDA registered (Class I)
- Suitable for individuals 16 years or older; pediatric size available in near future
- Available in boxes of 50 units with outer cartons containing 24 boxes (total of 1200 RHINOSWABs)
- Further resources such as technical specifications and data sheets to support the procurement process within your hospital, health service or organization are available upon request or can be downloaded from our website: rhinomed.global/rhinoswab

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RHINOSWAB: LEADING THE WAY IN SWAB TECHNOLOGY

- A more comfortable way to swab, with high patient acceptability
- Unique anatomical design and dual nostril application ensures a robust sample yield
- Standardized collection technique aids quality sampling, even when self-collected
- Fits with your existing pathology workflows and rt-PCR collection tubes
- Ideal for self-collection, as a way to increase test access while reducing demand on your HC workforce, HCW infection risk and PPE utilization

WATCH RHINOSWAB IN ACTION

TO REQUEST SAMPLES OR A PRODUCT DEMONSTRATION, OR TO MAKE AN ORDER, EMAIL:
swab@rhinomed.global

References: 1. Rhinomed Pty Ltd. Data on file 2020/21. **2.** Tu YP *et al*. Swabs collected by patients or health care workers for SARS-CoV-2 testing [Letter to the Editor]. *N Engl J Med*; 3 June 2020. **3.** McCulloch D. Comparison of unsupervised home self-collected midnasal swabs with clinician-collected nasopharyngeal swabs for detection of SARS-CoV-2 infection. *JAMA Network Open* 2020;3(7):e2016382. doi:10.1001/jamanetworkopen.2020.16382. **4.** Wehrhahn M *et al*. Self collection: an appropriate alternative during the SARS-CoV-2 pandemic. *J Clin Virol* 2020;128:104417. doi: https://doi.org/10.1016/j.jcv.2020.104417. **5.** Altamirano J *et al*. Assessment of sensitivity and specificity of patient-collected lower nasal specimens for severe acute respiratory syndrome coronavirus 2 testing. *JAMA Netw. Open* 2020;3(6):e2012005. doi:10.1001/jamanetworkopen.2020.12005. **6.** Centers for Disease Control and Prevention (CDC), US Department of Health & Human Services. Interim guidelines for collecting, handling and testing clinical specimens for COVID-19 (last updated 6 Jan 2021). Available at: https://www.cdc.gov/coronavirus/2019-ncov/lab/guidelines-clinical-specimens.html#specimen (last accessed February 2021). **7.** US Food and Drug Administration (FDA). Coronavirus (COVID-19) update: daily roundup (published March 23, 2020). Available at: https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-daily-roundup (last accessed February 2021). **8.** Office of the Assistant Secretary for Health, US Public Health Service. Nasal (Anterior nasal) specimen collection for SARS-CoV-2 diagnostic testing. Fact sheet. 11 Nov 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/downloads/lab/OASH-nasal-specimen-collection-fact-sheet_updates_2020_11_11_508.pdf (last accessed February 2021). **9.** Chicago Sun Times, 10 April 2020. COVID-19 tests: What it feels like to have one. Available at https://chicago.suntimes.com/coronavirus/2020/4/10/21216845/coronavirus-covid19-abbott-rapid-swab-test-nose-nasal-how-it-feels-jayant-pinto-molly-erickson (last accessed February 2021). **10.** ABC News, 27 August 2020. Coronavirus testing in Melbourne went down — here's why some Aussies are avoiding the swab. Available at https://www.abc.net.au/news/2020-08-27/coronavirus-covid-19-test-victoria-queensland-nsw-why-not/12601334?nw=0 (last accessed February 2021). **11.** Marty FM, Chen K and Verrill KA. How to obtain a nasopharyngeal swab specimen. *N Engl J Med* 2020;382:e76. doi: 10.1056/NEJMvcm2010260. **12.** Palmas G *et al*. Nasal swab as preferred clinical specimen for COVID-19 testing in children. *Pediatr Infect Dis J* 2020;39(9):e267–270. doi: 10.1097/INF.0000000000002812. **13.** Harding H *et al*. Aerosol-generating procedures and infective risk to healthcare workers from SARS-CoV-2: the limits of the evidence. *J Hosp Infect* 2020;105(4):717–725. doi:10.1016/j.jhin.2020.05.037 **14.** Arnaout R *et al*. SARS-CoV2 testing: the limit of detection matters. *bioRxiv* (preprint); 4 June 2020. doi: 10.1101/2020.06.02.131144. **15.** Dhiman N *et al*. Effectiveness of patient-collected swabs for influenza testing. *Mayo Clin Proc* 2012;87(6):548–554. doi:10.1016/j.mayocp.2012.02.011.

Contact us to discuss how RHINOSWAB may help deliver a better sampling solution for your needs.
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