



# 抗原快速检测 (简称ART) 试点阶段项目

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21<sup>st</sup> Jun 2021

# 内容

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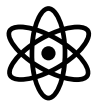
背景



抗原快速检测 (简称ART) 的概述



规划流程



抗原快速检测 (简称ART) 的实施



潜在的挑战

# 背景

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大约3周前...

## 新加坡计划与 Covid-19 一起生活的新常态：李总理

*“ARTs are therefore invaluable as a quick check” for a likely Covid-19 positive individual to be immediately isolated while waiting for the PCR results.”*

*“As the virus mutates to become more transmissible, we must respond by testing more widely,”*

*“This will reassure their customers, patients and students, and enable them to work safely even with Covid-19 in circulation.”*



李显龙总理讲话摘录  
2021年5月31日

# 背景

## 海峡时报 - 抗原快速检测 (ART) 的好处

**Testing for the virus**  
A variety of Covid-19 tests – with the latest being over-the-counter test kits – are now under Singapore's belt, allowing fast, extensive, easy and accurate tests to be conducted as the nation raises its game to fight the virus.  
Cheryl Tan and Clara Chong report.

Test and brief description	Cost	Time taken	Ease of use	Accuracy	Other detail
<b>Reverse transcription polymerase chain reaction test (RT-PCR)</b> <ul style="list-style-type: none"> <li>Swab test from the nose or back of throat, or from sputum</li> <li>Looks for genetic signatures of Covid-19</li> </ul>	<ul style="list-style-type: none"> <li>Over \$150 to \$200 for in-lab testing</li> <li>If you have been advised by your doctor to take a swab test, this will be free.</li> </ul>	A few hours	Requires the use of specialised lab machines	<ul style="list-style-type: none"> <li>Gold standard for testing</li> <li>Sensitivity rate (ability to detect those who are positive) more than 93 per cent</li> </ul>	<ul style="list-style-type: none"> <li>Very uncomfortable</li> <li>An average of 25,000 PCR and ART tests were carried out each day in the second half of May</li> </ul>
<b>Antigen rapid test (ART)</b> <ul style="list-style-type: none"> <li>Some involve using a nasal swab from the lower part of the nose</li> <li>Looks for proteins on the surface of the virus called antigens</li> </ul>	As low as \$10.	20 to 30 minutes	<ul style="list-style-type: none"> <li>Deployment is very flexible because it is a handheld device and can be done in a room with many people being swabbed at the same time</li> <li>ARTs have been rolled out to almost all the public health preparedness clinics that are providing the "swab and send home" service and at polyclinics</li> <li>To expand testing capacity, the Government is helping to deploy them to private GPs as well</li> </ul>	<ul style="list-style-type: none"> <li>Not as accurate as PCR tests, but able to pick up infections early</li> <li>Sensitivity rate: 82 per cent</li> </ul>	<ul style="list-style-type: none"> <li>Those with acute respiratory symptoms are required to take an ART test on top of a PCR test to allow faster detection of cases</li> <li>Used heavily for pre-event testing</li> </ul>
<b>Breathalyzer</b> No swabbing, just blowing into a mouthpiece or cartridge	Estimated to be around \$100	1 minute	Involves some equipment	Silver Factory Technology reported that its breathalyzer has a sensitivity rate of over 95 per cent (five of more than 99 per cent when compared with PCR kits)	Used at the Causeway and the airport
<b>Over-the-counter tests</b> Like pregnancy kits, these could be ART tests which are purchased from pharmacies and administered at home	Price to be confirmed.	ART usually takes 20 to 30 minutes	Ease of use to be confirmed.	ART tests typically have a sensitivity rate of 82 per cent.	<ul style="list-style-type: none"> <li>People who are worried about Covid-19 and wish to put their mind at ease, such as front-line workers who may wish to test themselves daily</li> <li>Will be simple to use and not so uncomfortable</li> </ul>
<b>Wastewater testing (far right)</b> <ul style="list-style-type: none"> <li>Detects the presence of the virus at a location. This can then be followed up with clinical tests</li> <li>Frequency of sample collection varies from site to site and depends on the purpose of surveillance.</li> </ul>					Locations islandwide that have had their wastewater surveyed include the four water reclamation plants, workam, dormitories, nursing homes and hotels.
<b>Pooled testing</b> <ul style="list-style-type: none"> <li>One PCR test on a group of suspected cases</li> <li>If the pooled test yields a positive result, all the people in the group will be tested individually to fish out the Covid-19 case.</li> </ul>					Usually conducted in dormitories to get a sense of the prevalence rate of Covid-19 there.

**Antigen rapid test (ART)**

- Some involve using a nasal swab from the lower part of the nose.
- Looks for proteins on the surface of the virus called antigens.

**As low as \$10.**

**20 to 30 minutes**

- Deployment is very flexible because it is a handheld device and can be done en masse with many people being swabbed at the same time.
- ARTs have been rolled out to almost all the public health preparedness clinics that are providing the "swab and send home" service and all polyclinics.
- To expand testing capacity, the Government is hoping to deploy them to private GPs as well.

- Not as accurate as PCR tests, but able to pick up infections early.
- Sensitivity rate: **82 per cent**

摘自《海峡时报》，2021年5月31日

# 背景

## 目前的做法



## 抗原快速检测 (ART) / 没有接种疫苗



## 抗原快速检测 (ART) 与接种疫苗

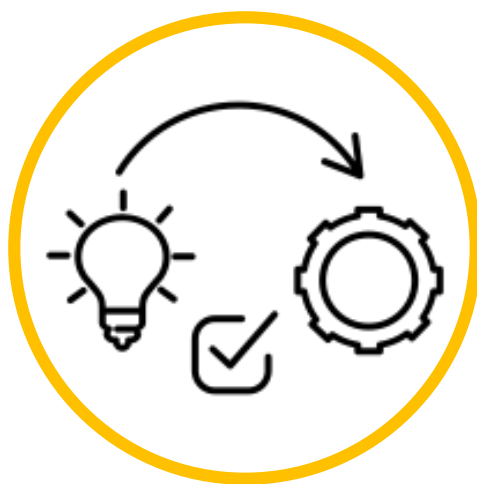


# 抗原快速检测 (ART) 的概述

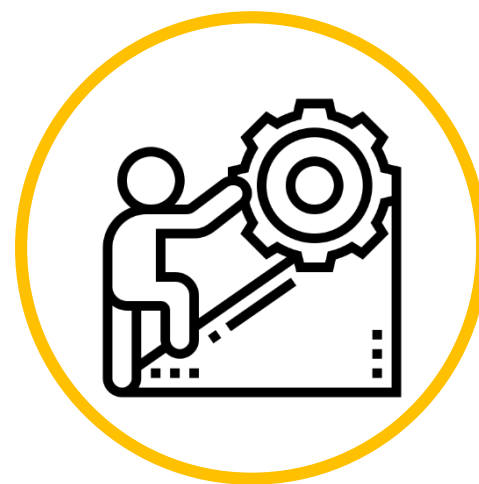
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规划



执行



挑战

# 规划流程

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这些是 **ART** 实行地点的主要考虑因素



通风良好的位置



控制接入点



有足够容量的等候区



训练有素的员工和基本个人防护装备(PPE)等资源



正确处置生物废弃物

# 规划流程

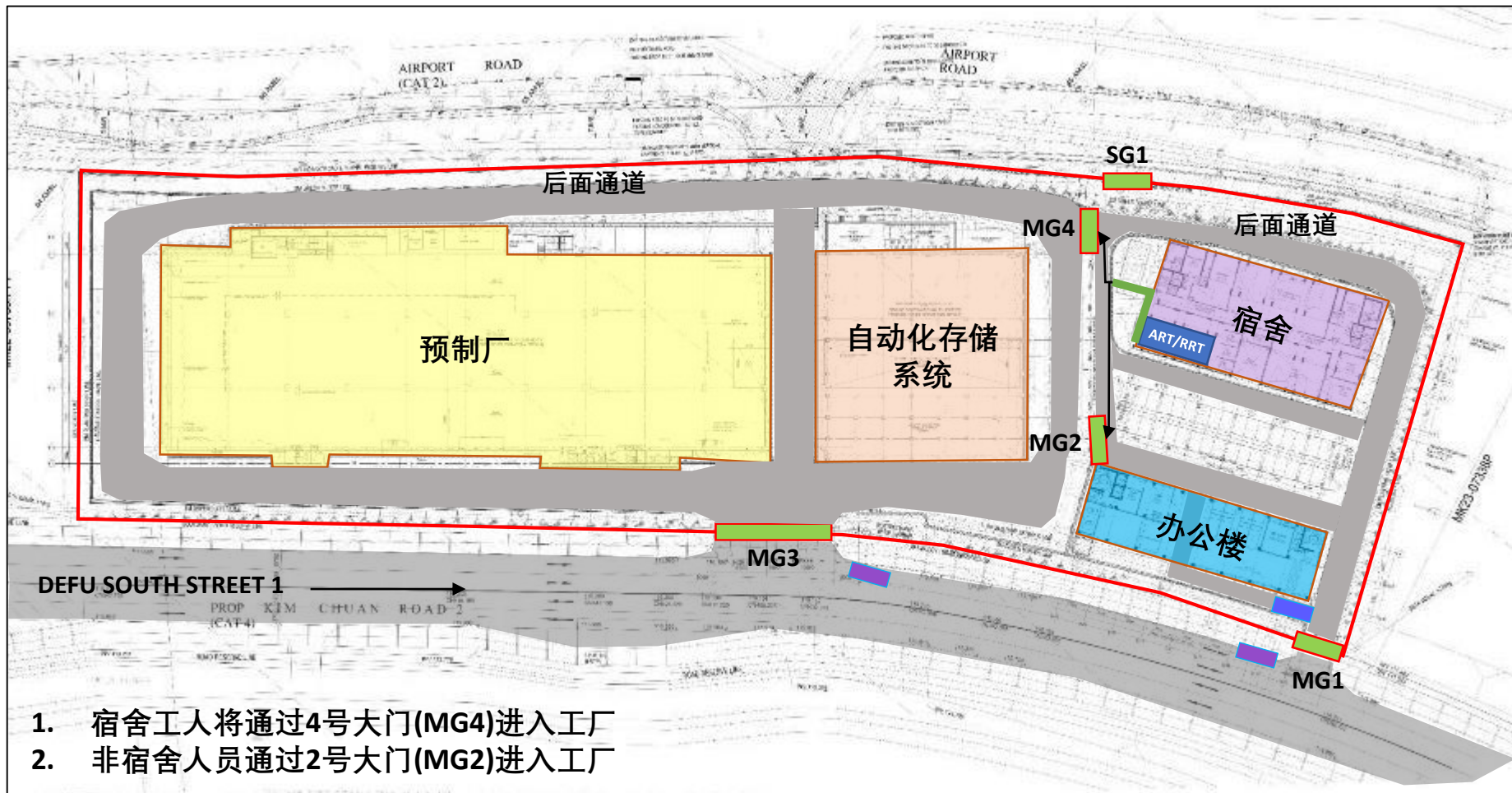
抗原快速检测 (ART) 试点地点的位置





# 规划流程

## 预定接入路径



# 规划流程

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## 确定目标群体



Teambuild 的工厂员工住在非宿舍区

19 人



预制件检验工厂驻地技术官员 (RTO)

1 人



定期送货司机

3人



临时访客

-


共计:

23人


# 规划流程

## 人员培训和人力分配

### ANTIGEN RAPID TEST (ART) SWABBING AND SUPERVISION FOR BUILT ENVIRONMENT



**OPEN FOR REGISTRATION**



[www.bcaa.edu.sg/ART-training](http://www.bcaa.edu.sg/ART-training)

**OBJECTIVES**

- Perform swabber role for ART and result testing
- Plan and implement ART operations at project sites
- Supervise ART swab and result adhering to guidelines
- Familiar with Infection Prevention and Control guidelines and protocols

**STRUCTURE**

- Session 1 – Theory lesson via Zoom (3-hour)
- Session 2 – In person practical & assessment @ BCA Academy (3-hour)

**PREREQUISITE**

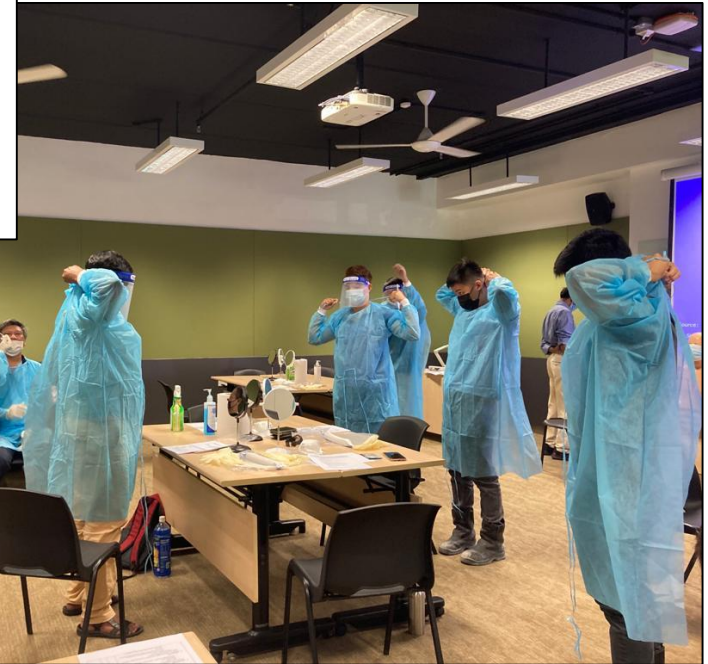
- Trainee must have proficiency in English and the capacity to perform supervisory role
- Trainee must be medically fit to wear full PPE

**COURSE FEE**

- \$250 (incl. GST)

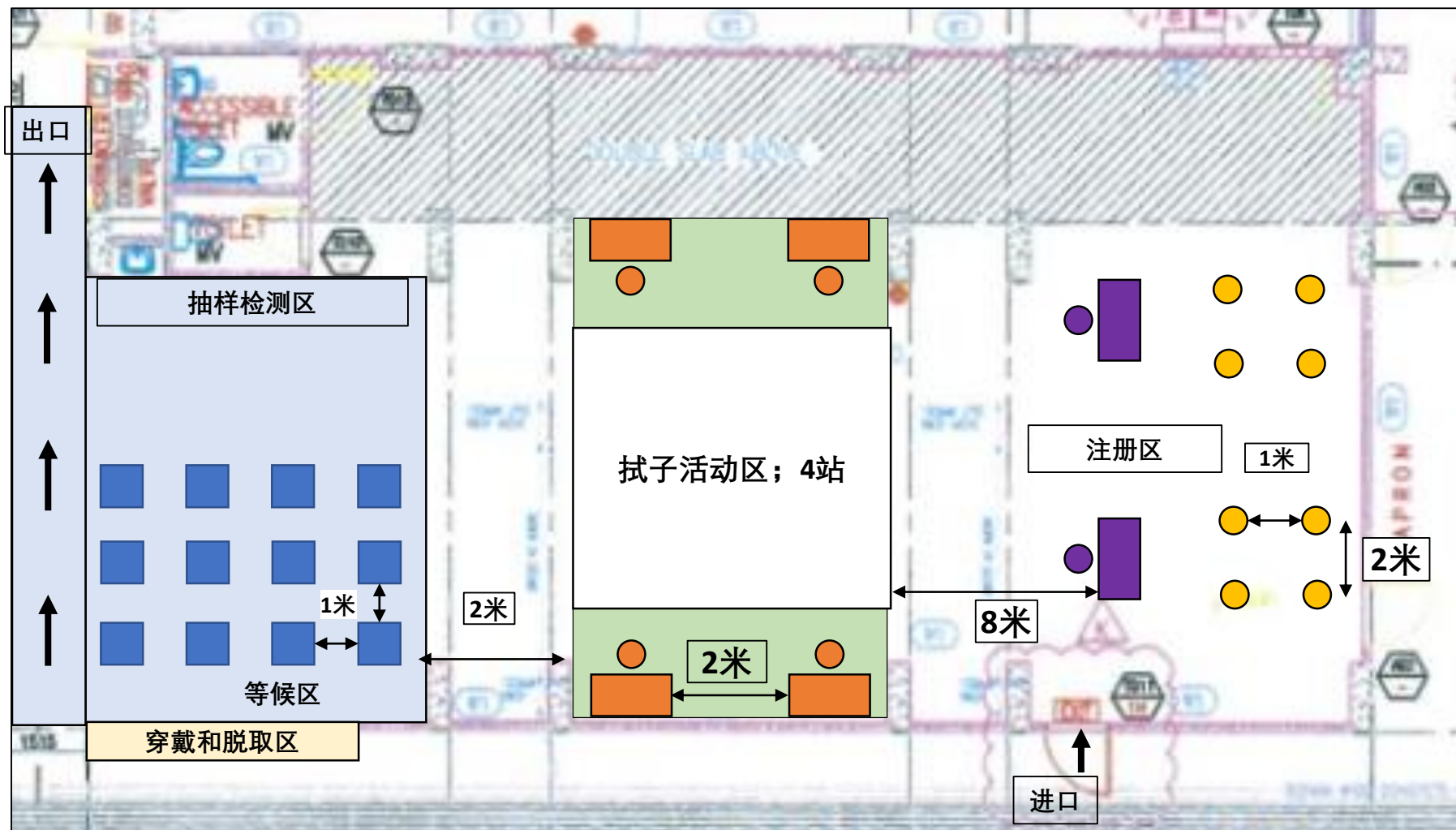
**BCA ACADEMY**

RESTRICTED: Do not circulate to external parties without BCA's prior consent



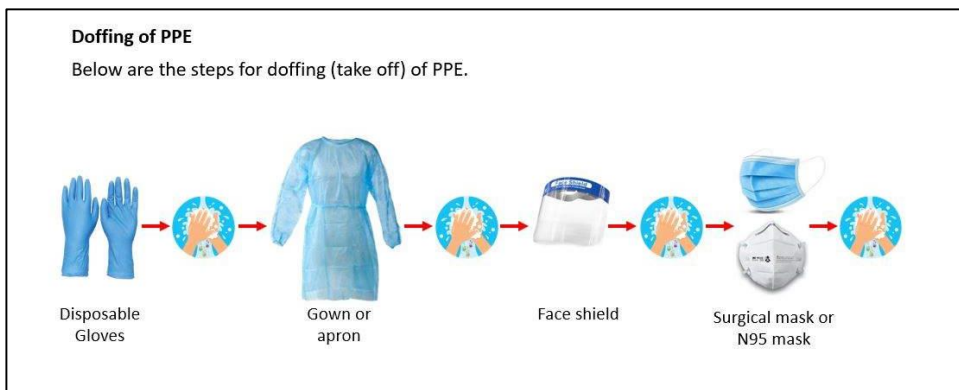
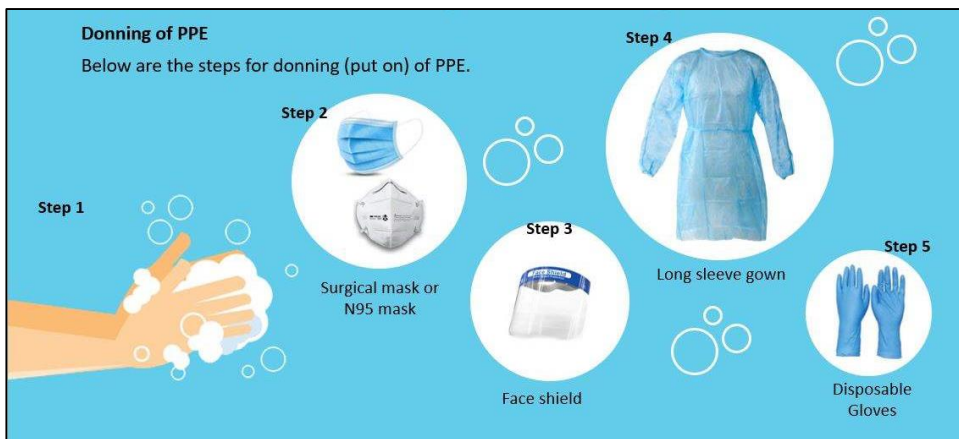
# 抗原快速检测 (简称ART) 的实施

## ART 的场地布局



# 抗原快速检测 (简称ART) 的实施

## 穿戴和脱取区



完整的基本个人防护装备 (PPE)

# 抗原快速检测 (简称ART) 的实施

## 注册过程



个人信息的验证



登记详情



ART 测试套件的标记



分发ART测试套件

# 抗原快速检测 (简称ART) 的实施

## 测试区



引导到自拭子 ART 站



自拭子ART过程的监督



ART 测试套件的摆放

# 抗原快速检测 (简称ART) 的实施

## 测试区



在监督下进行自我拭子  
(旋转 5 次, 每个鼻孔保持 5 秒)



将拭子棒插入试剂管, 上下插入15秒, 挤压前取出



将 3 滴放在 ART 测试盒的样品孔上

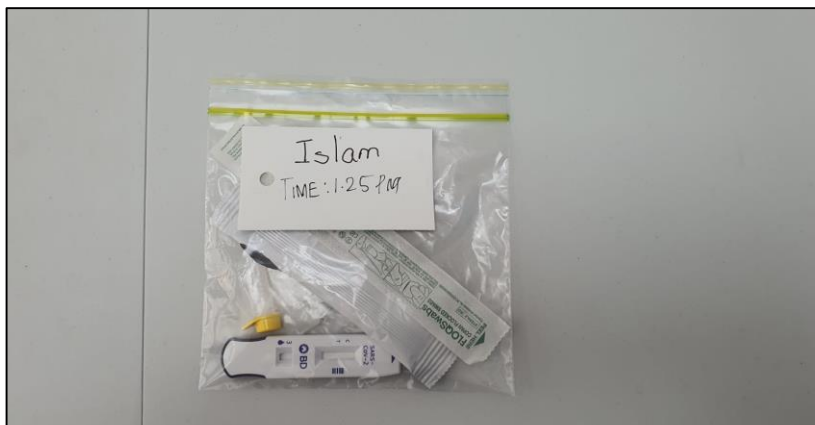


执行全面擦拭和消毒双手



# 抗原快速检测 (简称ART) 的实施

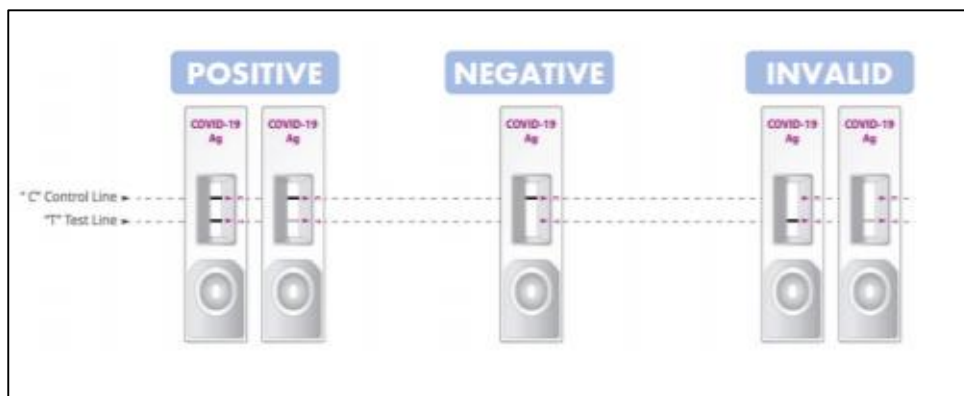
## 采样活动和等候区



将 ART 墨盒放入自封袋中并注明时间



将 ART 试剂盒置于采样测试区



测试结果样本

# 抗原快速检测 (简称ART) 的实施

## 采样活动和等候区



15 分钟后通知工作人员结果



如果结果为阴性，则继续工作

S/N	Time	Test Results (P/N)	Test Kit	Vaccinated	Vaccinated Date	Remarks
1	8:20	N	80 Veritor	Yes		
2	—	—	80 Veritor	Yes		AL
3	8:40	N	80 Veritor	Yes		
4	8:40	N	80 Veritor	Yes		
5	8:40	N	80 Veritor	Yes		
6	8:37	N	80 Veritor	Yes		
7	—	—	80 Veritor	Yes		Not taken
8	08:14	N	80 Veritor	Yes	1/6/2021	Day 8 ART aft 15 Jun
9	09:00	N	80 Veritor	Yes	6/6/2021	Day 8 ART aft 19 Jun
10	8:58	N	80 Veritor	Yes	8/6/2021	Day 8 ART aft 22 Jun
11	8:42	N	80 Veritor	Yes	10/6/2021	Health on Day 8 only
12	9:12	N	80 Veritor	Yes	21/6/2021	Health on Day 8 only
13	9:25	N	80 Veritor	Yes	21/6/2021	Health on Day 8 only
14	8:35	N	80 Veritor	Yes	21/6/2021	Health on Day 8 only
15	8:55	N	80 Veritor	Yes	11/6/2021	Health on Day 8 only
16	8:38	N	80 Veritor	Yes	21/6/2021	Health on Day 8 only
17	8:38	N	80 Veritor	Yes	21/6/2021	Health on Day 8 only
18	8:50	N	80 Veritor	Yes	18/5/2021	Health on Day 8 only
19	8:40	N	80 Veritor	Yes	12/5/2021	

记录结果

# 抗原快速检测 (简称ART) 的实施

## 通过 FormSG 更新 ART 测试

Building and Construction Authority

### Daily ART Report

10 mins estimated time to complete

452C - LOG OUT

Logged in as corporate user

#### Instructions

Please complete and submit this form at the end of each ART day.

Building and Construction Authority

Thank you for filling out the form.

Submit another form

452C - LOG OUT

提交画面

1. BCA Project Ref  
Eg: AXXX-XXXX-XXXX
2. Project Description  
eg: ICPH-XXX, Building Work at Kaki Bukit
3. Owner (eg. GPE, developer)
4. UEN of Main Contractor
5. Name of Main Contractor
6. Date of ART Swab
7. No of Forecasted ART Swab
8. Actual No of ART Swab
9. No of Inconclusive ART Swab  
Indicate '0' if none

10. No of Ag+  
Indicate '0' if none
11. No of AG-
12. Number of workers onboarded on ART from commencement to date in my project (i.e. unique individuals who have done ART)
13. Declaration  
 I declare that the information provided above is updated and accurate to the best of my knowledge.
14. Comments and Feedback (if any) (optional)


SUBMIT

下午 5 点前提交 ART 测试详细信息。  
\*如果没有ART操作，则无需更新。

# 抗原快速检测 (简称ART) 的实施

## 将 ART 结果上传到 SRS 系统

**This page is for HPB and Government Agencies internal use only.**  
**For EMPLOYERS scheduling for RRT, please click [HERE](#)**



### Swab Registration System


If you are not an authorized user, please quit now.

Email :

Password :

[Forget password?](#)

Having trouble logging in?  
Contact us at AskSRS@hpb.gov.sg  
[Privacy Statement](#)



### Swab Registration System

User: LIM KOK HENG  
Help | [Update Profile Detail](#) | [Change Password](#) | [Logout](#)  
Server Name : vmprdrsapp1


Downtime Module | [Staff Management](#) | [COVID-19 Testing](#) | [Upload ART Result](#)

#### ART Result Upload

Upload by PII  Upload by UEN

Upload ART Result by PII (sample: UploadARTResultbyPIISample) : \*  No file chosen  
Maximum File Upload Size : 5 MB

Notes:  
1. This function is used for uploading ART result.



### Swab Registration System

User: LIM KOK HENG  
Help | [Update Profile Detail](#) | [Change Password](#) | [Logout](#)  
Server Name : vmprdrsapp1

Downtime Module | [Staff Management](#) | [COVID-19 Testing](#) | [Upload ART Result](#)

#### Staff Management

Note:  
Workers who are on Quarantine Order (QO) or Stay Home Notice (SHN) should not attend the rostered routine test (RRT) during the QO/SHN period; they should resume attending the RRT after the QO/SHN period.  
If your foreign worker's information cannot be found below, it is likely due to one or more of the following reasons:  
1. The worker had contracted COVID-19 within the past 150 days and is either in recovery or recovered.  
2. The worker's work pass has expired or been cancelled.  
If your foreign worker fulfills any of the above conditions, his information will not be included in the Swab Registration System and he should not be registered for testing.  
Your company is allow to book a maximum of 80 staffs for each screening date

Appt Status :

[Add New Staff \(Single\)](#) | [Add New Staff \(Bulk\)](#)

200 per page H 4 Page 1 of 1

Dear G\*\*\*\*406Q, your ART result is **NEGATIVE** for the test performed on 17-Jun (Thu) 08:40 AM.  
Result Link: ([https://checker.covid-ops.gov.sg/?serial\\_no=24736a22-5fb7-49af-87d3-fc8ad2d396b0](https://checker.covid-ops.gov.sg/?serial_no=24736a22-5fb7-49af-87d3-fc8ad2d396b0))  
This result is uploaded by  
(INTEGRATED PRECAST SOLUTIONS PTE LTD)

Dear G\*\*\*\*275P, your ART result is **NEGATIVE** for the test performed on 17-Jun (Thu) 08:50 AM.  
Result Link: ([https://checker.covid-ops.gov.sg/?serial\\_no=91265686-60fc-4d2f-9b0e-0a03d893b5ad](https://checker.covid-ops.gov.sg/?serial_no=91265686-60fc-4d2f-9b0e-0a03d893b5ad))  
This result is uploaded by  
(INTEGRATED PRECAST SOLUTIONS PTE LTD)

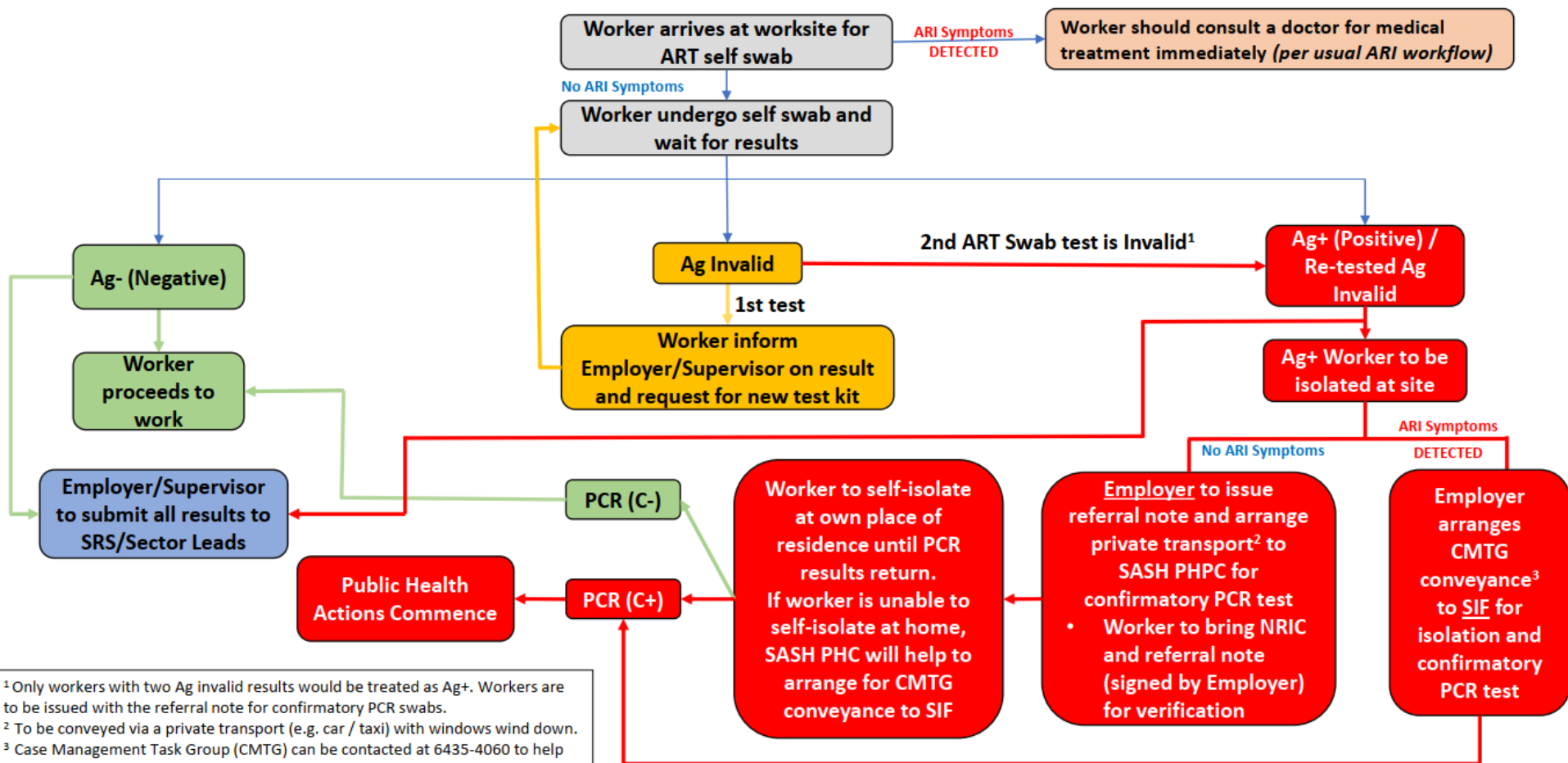
将向个人发送关于他们的 ART 结果的短信

# 抗原快速检测 (简称ART) 的实施

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# 抗原快速检测 (简称ART) 的实施

## Ag-/Ag+/重新测试的 Ag 无效的工作流程



<sup>1</sup> Only workers with two Ag invalid results would be treated as Ag+. Workers are to be issued with the referral note for confirmatory PCR swabs.

<sup>2</sup> To be conveyed via a private transport (e.g. car / taxi) with windows wind down.

<sup>3</sup> Case Management Task Group (CMTG) can be contacted at 6435-4060 to help arrange for conveyance of the worker to a Swab Isolation Facility (SIF)

# 潜在的挑战

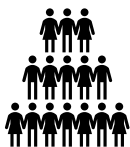
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缺乏对 ART 要求的认识



ART 拭子现场时间分配



人力约束



人员没有执行正确的自拭子技术



空间约束

# Together, we can!

让我们共同努力，以心态战胜疫情







*THANK YOU.*  
谢谢