



**Project of COVID-19 active case finding using  
antigen rapid diagnostic tests  
in the Democratic Republic of the Congo  
Final report of phases I and II - as at 30 September 2021**

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# Executive Summary of the Technical Report

## AFCOD2018511 AWARD 71735 - Technical Review Report WHO/DRC

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<p><b>Duration of the activity:</b>          20 January to 30 September 2021</p>	<p><b>Project: AFCOD2018511</b>  <b>Award: 71735 (Phase II with FIND)</b>          Purchase Order (PO) Number :          Total expenditure US\$:          Balance of DI-IPO:</p>
<p><b>Purpose of the activity:</b>          To contribute to cutting the chain of transmission of COVID-19 in the DRC by extending the project to strengthen the active case finding, and scale-up the correct use of antigen rapid diagnostic tests for COVID-19 in the DRC          From January to September 2021, in 37 targeted Health Zones (HZs):</p> <ol style="list-style-type: none"> <li>1. Increase the rate of early detection of COVID-19 cases through active case finding in the community and in health facilities using antigen rapid diagnostic tests (Ag-RDTs) performed on suspected cases and high-risk contacts of confirmed cases;</li> <li>2. Ensure rapid medical case management of newly confirmed cases detected, through isolation and treatment, with transfer to a specialized centre, or home monitoring, depending on the case.</li> </ol>	<p><b>Brief description of the expected results:</b></p> <ul style="list-style-type: none"> <li>○ At least (≥) 420*2 trained laboratory assistants, healthcare providers and supervisors;</li> <li>○ ≥ 50,000 Ag-RDTs distributed;</li> <li>○ ≥ 50,000 suspected cases and direct contacts tested;</li> <li>○ ≥ 5,000 new confirmed cases treated in a specialized centre or monitored at home, depending on the case;</li> <li>○ ≥3 supervision missions organized;</li> <li>○ Daily case notification reports, as well as weekly situation reports, shared in real time;</li> <li>○ ≥ 20,000 copies of Ag-RDT active case finding guides, algorithms, and standard operating procedures (SOPs) reproduced and distributed;</li> <li>○ ≥ 80 tablets configured with the EWARS application purchased and distributed.</li> </ul>
<p><b>Summary of implementation and results obtained</b></p> <ul style="list-style-type: none"> <li>• 1,515 people trained in active case finding and Ag-RDT use during 76 training sessions in 39 health zones (HZs) in 9 provinces</li> <li>• 80,000 Ag-RDTs (Panbio-Abbott and Standard Q-SD Biosensor) were distributed in 39 HZs in 9 provinces</li> <li>• 55,909 Ag-RDTs were carried out on suspected cases and contacts of each confirmed case</li> <li>• 9,078 new confirmed Ag-RDT positive cases were treated in a health centre or at home</li> <li>• 14 supervision missions organized</li> <li>• Daily case notification reports, as well as weekly situation reports shared in real time</li> <li>• At least 25,000 copies of Ag-RDT active case finding guides, algorithms, SOPs and 200,000 copies of case definitions distributed</li> <li>• 80 tablets with the EWARS application distributed</li> <li>• Impact: Contribution to the end of the 3<sup>rd</sup> wave of COVID-19 in DRC</li> </ul>	<p><b>Difficulties encountered during implementation:</b></p> <ul style="list-style-type: none"> <li>○ Insufficient additional resources for the response to the 3<sup>rd</sup> wave of COVID-19</li> <li>○ Demotivation of health zone providers committed to the COVID-19 response following the cumulative delay in paying premiums;</li> <li>○ Insecurity in some active areas of COVID-19 in the east of the country</li> </ul>
<p><b>Recommendations and follow-up actions</b></p> <ul style="list-style-type: none"> <li>• <b>Mobilize more funds for an effective scale-up of this pilot project in all 106 active HZs facing the resurging 3<sup>rd</sup> wave</b></li> <li>• <b>Digitalize data management with EWARS</b></li> <li>• <b>Standardize the operational research protocol</b></li> <li>• <b>Continue to ensure quality assurance</b></li> </ul>	<p><b>Names of staff members involved in the implementation of the activity:</b></p> <ul style="list-style-type: none"> <li>○ Dr Justus NSIO; CO COVID-19, ST</li> <li>○ Dr Aimé BAFUANA and Dr MBUYI, Survepi</li> <li>○ Dr Edith NKWEMBE, TL Laboratory</li> <li>○ Dr Cathy KAKEMA and Dr UMBA, WHO</li> </ul> <p><b>Date and signature of person responsible</b></p>
<p><b>Comments and signature of the activity's Technical Manager - Activity Manager: Phase I was implemented with GAVI funds, while Phase II is under FIND funding. This report covers both phases.</b></p>	
<p><b>Comments and signature of the Incident Manager - Emergency Manager</b></p>	

WHO Representative - OIC

# I. Background and rationale

## I. BACKGROUND AND RATIONALE

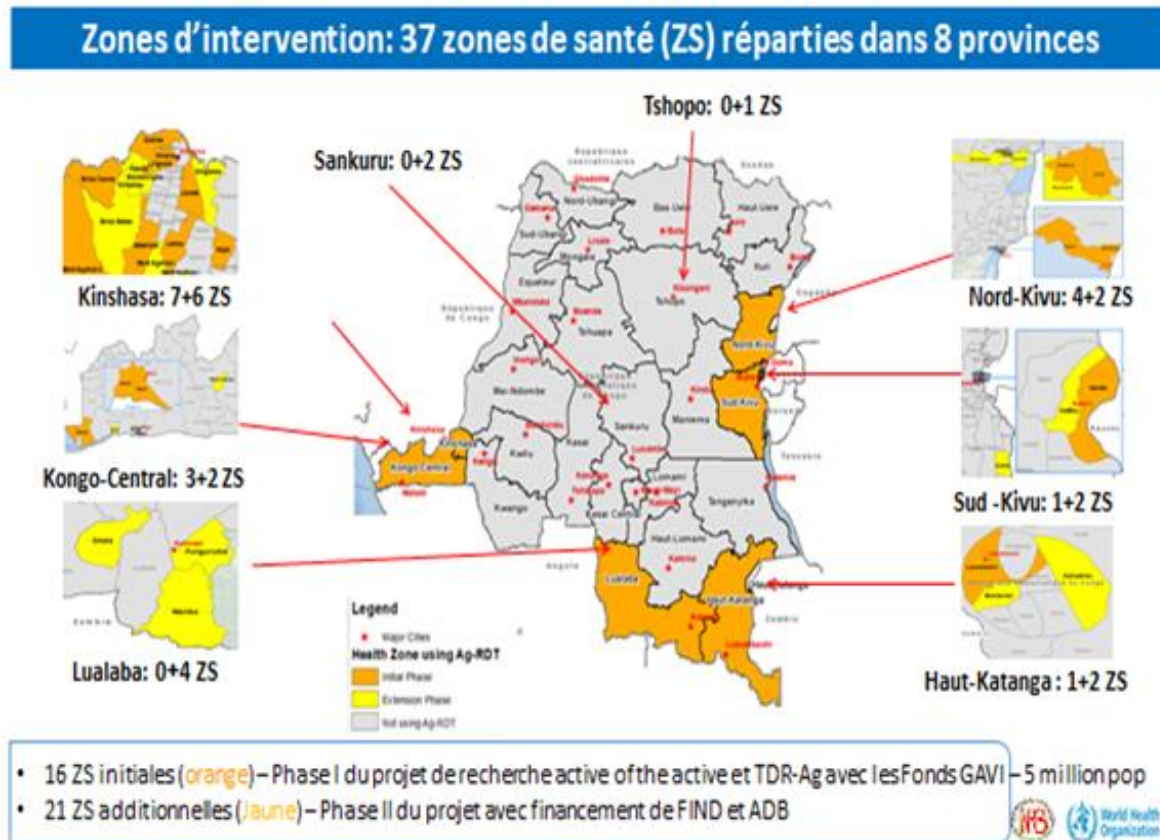
In the Democratic Republic of the Congo (DRC), the transmission of coronavirus disease (COVID-19) is primarily community-based, with 100% of provinces affected, and nearly 100 active health zones (HZ) on average every week. The DRC is currently at the end of the 3rd wave of the COVID-19 upsurge. Since the start of the epidemic, declared on 10 March 2020, until 26 September 2021, the cumulative number of confirmed cases was 56,947, including 1,084 deaths (1.9% lethality) and 50,675 people cured (89%). A total of 984 frontline health workers and providers were infected. Based on the information available in relation to the presence of signs and symptoms, 54.1% (5,466/10,100) of confirmed cases were asymptomatic at the time of notification. Many of these cases circulated in the community, spreading the disease, most often without seeking care at health facilities due to the absence of symptoms. In addition, COVID-19 vaccine coverage in DRC is one of the lowest in the world, with a performance of 0.22%, i.e. only 90,411 people received the first dose of the COVID-19 vaccine. Only 36,255 people received the second dose of the AstraZeneca vaccine. Poor adherence to physical and social distancing measures, as well as the circulation of variants (with predominance of the Delta variant) are contributing factors to the resurgence of COVID-19 in the DRC.

The rollout in Africa of new World Health Organization (WHO)-approved SARS-CoV-2 rapid antigen test (Ag-RDTs) has significantly increased screening capacity in some African countries, like Zimbabwe and Rwanda, marking a real turning point in the fight against COVID-19 in the Africa region. Although the DRC is considered a pioneer in scaling up the use of Ag-RDTs through health facility and community-based COVID-19 active case finding, testing capacity remains very low, with a current average of 1.5 tests carried out per 10,000 population per week, against a standard of at least 10 tests per 10,000 per week.

Given this low screening capacity, it is clear that there is under-reporting of COVID-19 cases. According to WHO AFRO estimates, only 1 in 7 cases would be detected in DRC. This low detection rate is also the consequence of an inappropriate screening strategy targeting mainly symptomatic suspected cases presenting at health facilities, while the majority of asymptomatic or pauci-symptomatic infected cases, including exposed high-risk contacts, are circulating in the community and do not get tested. Nucleic amplification tests (NAAT), such as RT-PCR (manual or automatic), are considered reference tests for COVID-19, but access to them is limited to a few provinces in the country. Indeed, although GeneXpert machines (automatic RT-PCR) are available in 74% of the country's health zones, the stock of GeneXpert cartridges remains insufficient overall. In total, 35% (11/31) of the laboratories for COVID-19 diagnosis by RT-PCR are in Kinshasa, and 9 provinces out of 26 (34%) do not have a PCR laboratory. All things considered, the DRC remains one of the priority countries to target in the WHO AFRO region. In order to increase the population's access to a reliable, rapid and less costly or free diagnosis, and to decentralize COVID-19 testing while maintaining quality, the DRC has developed a national laboratory diagnosis plan, including the deployment and proper use of Ag-RDTs. Ag-RDTs, including Panbio/Abbott, and Standard Q/Biosensor (WHO prequalified), are considered alternative screening methods in the DRC. Easy to use, rapid and affordable compared to RT-PCR, these tests can be used outside of high-security laboratories, in healthcare facilities and in the community, by individuals with no basic laboratory training. SARS-Cov-2 Ag-RDT use has been validated in the DRC as a diagnostic tool for COVID-19, where PCR is not available.

In an attempt to improve the case detection rate, the Ministry of Health, with the technical and financial support from the WHO DRC country office, has implemented since January 2021 an innovative pilot project for active case finding of COVID-19 using Ag-RDT screening in the community and in health facilities. This project is currently operational in 37 active health zones in 8 of the most affected provinces. (Figure 1)

Figure 1: Intervention areas of the COVID-19 and Ag-RDT case finding project in the DRC



- Currently, this project has two phases: Phase I of the active search and Ag-RDT project with GAVI funds, implemented in 16 initial health zones (HZs) (orange) with 5 million population, and Phase II of the project, with funding from **FIND** for 23 additional HZs (yellow), a total of 37 HZs spread over 8 provinces. In the coming stages, Phase III aims to cover 69 additional health zones, selected on the basis of analyses of active zones that have reported new cases in the last 14 days to 14 July 2021. This will bring the overall total of areas supported by the project to 106 health zones.
- This report presents the cumulative results obtained, lessons learned, challenges, and future prospects after 9 months of implementation (January to September 2021) of the activities of this pilot strategy of active COVID-19 case findings in the DRC community using Ag-RDTs. This report marks the official end of the GAVI (Phase I) and FIND (Phase II) funding.

## II. Objectives and strategies

### Objectives

#### **Overall objective**

To contribute to breaking the chains of COVID-19 transmission in the Democratic Republic of the Congo by extending the COVID-19 active case finding project through early detection of cases, using SARS-CoV-2 antigen rapid diagnostic tests (Ag-RDTs), and rapid case management in health facilities and in the community.

#### **Specific objectives**

From January to September 2021, in at least 37 targeted health zones:

1. Increase the rate of early detection of COVID-19 cases through active case finding in the community and in health facilities using antigen rapid diagnostic tests (Ag-RDTs) performed on suspected cases and high-risk contacts of confirmed cases;
2. Ensure rapid medical case management of new confirmed cases through isolation and treatment, with transfer to a specialized centre or follow-up at home, depending on the case.

#### **Operational objectives**

From January to September 2021, in at least 37 targeted health zones during the two phases:

1. Train at least 420\*2 laboratory technicians, healthcare providers and epidemiological surveillance agents in active case finding in 16 + 21 target health zones in two phases;
2. Distribute at least 50,000 Ag-RDTs in the target areas;
3. Actively screen at least 50,000 suspected cases and high-risk contacts of confirmed cases in the community, using COVID-19 antigenic rapid diagnostic tests during enhanced active search activities;
4. Isolate and medically manage at least 5,000 new confirmed cases, with transfer to a specialized centre or home monitoring as appropriate;
5. Organize at least 3 missions for formative supervision and quality assurance of intensified active search activities and proper use of Ag-RDTs;
6. Improve data management and real-time reporting of project activities.

#### **Expected results**

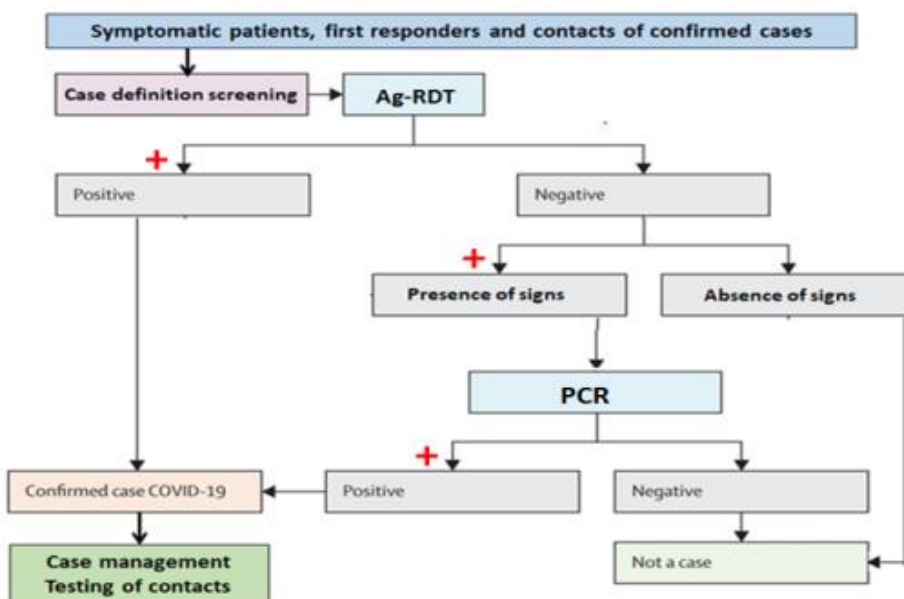
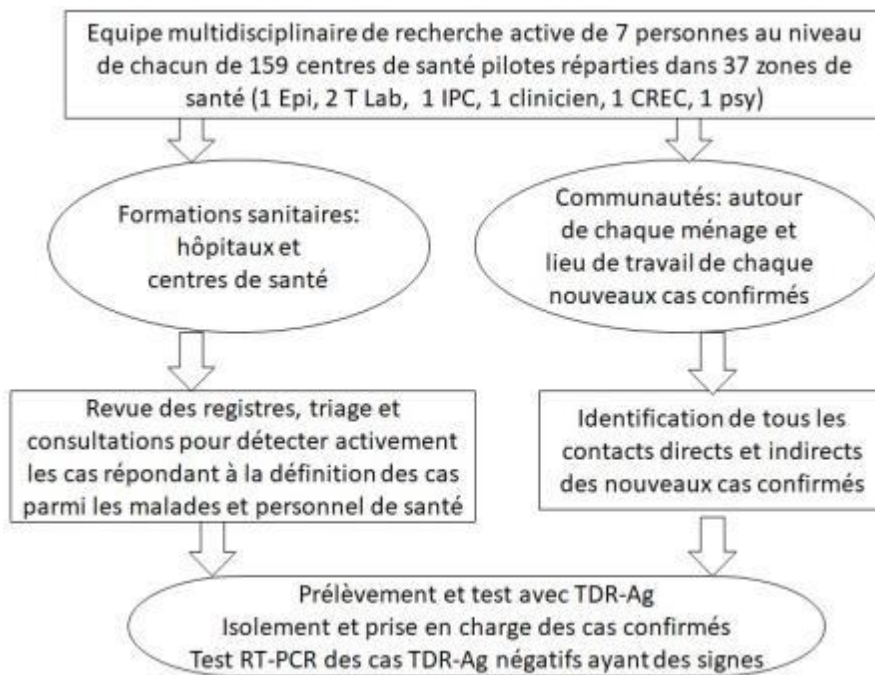
January to September 2021, in at least 37 targeted health zones during the two phases:

1. At least 420\*2 laboratory technicians, healthcare providers and surveillance agents are trained;
2. At least 50,000 Ag-RDTs distributed in the targeted areas;
3. At least 50,000 suspected cases and high-risk contacts of confirmed cases are tested with Ag-RDTs;
4. At least 5,000 new confirmed cases are treated in a specialized centre or followed up at home, as appropriate;
5. At least 3 missions for formative supervision and quality assurance of activities are organized;
6. Daily case notification reports, as well as weekly situation reports, are shared in real time;
7. At least 20,000 copies of Ag-RDT active case finding guides, algorithms, and standard operating procedures (SOPs) reproduced and distributed;
8. At least 80 tablets to be configured with the EWARS application purchased and distributed.

#### **Methodology - strategies**

This project will be implemented according to the standards, guidelines and procedures for diagnosis of SARS-CoV-2 defined in the DRC's National Response Plan to the Coronavirus Epidemic (COVID-19), as well as the algorithm for the use of WHO's COVID-19 antigen detection-based rapid diagnostic tests (Ag-RDT). Coordination of the COVID-19 response in the DRC, in collaboration with INRB and with technical and financial support from WHO, developed standard operating procedures (SOPs), technical guides, and training modules to facilitate the effective implementation of this project. The activities and protocols used were integral to the activities and strategies of the DRC's response to COVID-19. This pilot project, defined as an operational implementation study, was approved by the ethics committee of the School of Public Health

of the University of Kinshasa under the approval number ESP/CE/64/2021 of 24 March 2021, amendment to the initial approval ESP/CE/114/2020. Advocacy has made it possible to obtain a commitment from the political and health authorities, both at the national level and at the level of the targeted provinces.



### III. Main results obtained as at 30 September 2021

**Result # 1: A total of 1,515 laboratory technicians and end-users trained during 76 training sessions, with a maximum of 20 participants, in the 39 health zones of 9 provinces during the 2 phases of the project -- 760+755 trained against 420+420 planned**

#### Training of laboratory technicians and end-users

Situation of trained persons according to health zones and areas during the two phases of the active case finding project with the use of Ag-RDTs in DRC, from January to September 2021

- 39 targeted health zones in over 9 active provinces
- 1,515 laboratory technicians and other end-users (healthcare providers and surveillance officers) trained in two phases (green Phase I with 16 HZs and yellow Phase II with 23 HZs)
- 249 health areas or communities and healthcare facilities involved and equipped with multidisciplinary teams for active case finding and Ag-RDT screening
- 30+26 national laboratory technicians and supervisors trained as national trainers
- 5 national supervisors completed the international online WHO course on Ag-RDTs

**Table I: Distribution of people trained and healthcare facilities targeted for Ag-RDT case finding by province and by HZ during the two phases of the project (I in Green and II in Yellow)**

N	PROVINCE	N	ZONE DE SANTE	Nombre des laborantins et utilisateurs finaux - prestataires formés	Nombre des aires de santé communautés et structures de soins ciblées
1	KINSHASA	1	GOMBE	101	11
		2	BINZA OZONE	51	10
		3	LIMETE	54	9
		4	LEMBA	57	9
		5	KOKOLO	51	14
		6	KINSHASA	51	10
		7	LINGWALA	29	5
		8	BINZA METEO	33	5
		9	BARUMBU	32	5
		10	MONT NGAFULA 1	29	5
		11	KINTAMBO	37	5
		12	KINGABWA	42	5
		13	BANDALUNGWA	32	5
		<b>Sous Total Kinshasa</b>	<b>599</b>	<b>98</b>	
2	NORD KIVU	14	GOMA	37	5
		15	KARISIMBI	30	5
		16	BUTEMBO	29	5
		17	KATWA	28	5
		18	NYIRAGONGO	37	5
		19	KIROTSHE	41	5
		20	RUTSHURU	27	5
		<b>Sous Total Nord-Kivu</b>	<b>229</b>	<b>35</b>	
3	SUD KIVU	21	IBANDA/BUKAVU	62	12
		22	UVIRA	30	5
		23	KADUTU	30	5
		<b>Sous Total Sud Kivu</b>	<b>122</b>	<b>22</b>	
4	HAUT KATANGA	24	LUBUMBASHI	70	10
		25	MUMBUNDA	24	5
		26	KAMPEMBA	26	5
		<b>Sous Total Haut Katanga</b>	<b>120</b>	<b>20</b>	
5	LUALABA	27	DILALA	35	5
		28	MANIKA	35	5
		29	FUNGURUME	18	4
		30	KANZENZE	12	3
		<b>Sous Total Lualaba</b>	<b>100</b>	<b>17</b>	
6	KONGO CENTRAL	30	MATADI	49	8
		31	NZANZA	28	4
		32	MOANDA	33	4
		33	MBANZA NGUNGU	28	4
		34	BOMA	28	5
		35	AUTRES ZONES	22	5
		<b>Sous Total Kongo Central</b>	<b>188</b>	<b>30</b>	
7	TSHOPO	36	MAKISO-KISANGANI	29	5
		<b>Sous Total Tshopo</b>	<b>29</b>	<b>5</b>	
8	SANKURU	37	LODJA	43	8
		38	BENA DIBELE	29	5
		<b>Sous Total Sankuru</b>	<b>72</b>	<b>13</b>	
9	ITURI	39	BUNIA	56	9
			<b>Sous Total Ituri</b>	<b>56</b>	<b>9</b>
<b>TOTAL GENERAL</b>				<b>1515</b>	<b>249</b>



## Training of national trainers

During Phase I, a total of 30 participants were trained. These included laboratory technicians, medical biologists and samplers, field epidemiologists, and providers responsible for healthcare facilities in the targeted active areas.

- 18 laboratory technicians and medical biologists
- 11 epidemiologists from the Ministry of Health (MSP) and WHO; Provincial Health Department (DPS) supervisors
- 1 clinical doctor - specialist in the medical management of COVID-19 cases of the MSP

## Evaluations of participants

PARTICIPANTS CODE	Theoretical Test (/15 points)		Practical test: Reading the results (/10 points)	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
AVERAGE	9 (59%)	12 (77%)	9 (88%)	9 (92%)
HIGHEST RATING	14 (90%)	14 (90%)	10 (100%)	10 (100%)
LOWEST RATING	2 (13%)	6 (40%)	1 (10%)	4 (40%)
PASSED WITH RATING ≥80%	5/26 (19%)	15/25 (60%)	21/24 (88%)	22 / 24 (92%)

NB: During Phase II - 2 - other national trainers were also trained

## Result # 2: A total of 80,000 Ag-RDTs (Panbio-Abbott and Standard Q-SD Biosensor) were distributed in 39 health zones in 9 targeted provinces

During Phase I, 30,000 Abbott Panbio™ COVID-19 Ag Rapid Tests (Nasopharyngeal) were distributed at the end of the training sessions with GAVI/ECHO funds, and another 50,000 tests were purchased and distributed with FIND funds [30,000 Abbott tests (catalogue number 41FK10) and 20,000 SD Biosensor STANDARD™ Q COVID-19 Ag Tests (catalogue number 09COV30D)]. Purchases were made on the basis of quantifications made by the Ministry of Health but also based on specifications of the Ag-RDT approved by WHO and the DRC Ministry of Health. A distribution plan approved by the INRB was previously established with distribution at the end of the training sessions. A weekly monitoring report of Ag-RDT stocks, personal protective equipment and consumables was made by each health zone in order to avoid stock-outs. Quality control was carried out by INRB Kinshasa before any distribution, but also at the operational level by the provincial laboratories as well as by the end-users on the basis of control tests of boxes of 25 tests before any use in the field. The formative supervisions also aimed to ensure the quality assurance of the tests at the operational level.

## Result # 3: From 20 January to 24 September 2021, a total of 55,909 nasopharyngeal swabs and Ag-RDT samples were taken from suspected cases and high-risk contacts of each confirmed case

## Result #4: From 20 January to 24 September 2021, a total of 9,078 new cases were confirmed positive using Ag-RDTs and were medically treated in a specialized centre or monitored at home, depending on the case

In accordance with the operational strategy of the active case finding project using Ag-RDTs, and in line with the epidemiological surveillance protocol for COVID-19 in the DRC, high-risk contacts and people exposed to a confirmed case in the community, as well as symptomatic cases meeting the definition of suspected cases in healthcare facilities during active case finding, are initially recorded as alerts to be investigated, sampled, and confirmed, and finally tested with Ag-RDTs.

The cumulative report of COVID-19 alerts and Ag-RDT use from the start of the project on 20 January 2021 to 24 September 2021 is as follows:

- 71,750 alerts received / actively detected in the community and healthcare facilities
- 68,150 (95.0%) alerts investigated, with the completion of the investigation form
- 58,004 (85.1%) alerts validated as suspected cases following epidemiological investigations
- 55,909 (97.2%) of validated suspected cases were sampled and tested with Ag-RDTs
- 9,078 new confirmed cases through positive Ag-RDT results (16.2% positivity)

Announcement of results takes 30 to 60 minutes, depending on the number of tests performed at a site by a psychologist or psycho-social worker. Public health interventions to cut the chains of transmission are

immediately carried out by a multidisciplinary case finding team. This is an innovative holistic approach to the response to COVID-19. Confirmed cases of the day are immediately isolated and put on treatment at home or transferred by ambulance to a specialized treatment centre based on the clinical assessment – frailty score. All listed high-risk contacts at home, at work or at events are contacted and tested as well, whether they are symptomatic, pauci-symptomatic or not.

**Result # 5: A total of 14 missions for formative supervision and quality assurance activities were organized for national experts from MSP (INRB-DSE- ST CMR COVID-19) and WHO in 9 provinces (all targeted by the project)**

Phase I: deployment of supervisors and trainers: from 17 January to 15 February 2021

No.	Province–City/Health zone	Time frame	Mission order No.
1	Haut-Katanga – Lubumbashi	17 to 25 January 2021	
2	North Kivu – Goma	18 to 28 January 2021	
3	South Kivu – Bukavu	18 to 28 January 2021	
4	Kinshasa	06 to 15 February 2021	
5	Kongo Central Matadi and Moanda	06 to 15 February 2021	

Phase IIa: deployment of supervisors and trainers: from 11 to 20 June 2021

No.	Province–City/Health zone	Time frame	Mission order No.
1	Haut-Katanga – Lubumbashi	11 to 20 June 2021	MS/1251/SG/0873/YRS/2021
2	Lualaba – Kolwezi – Dilala	11 to 20 June 2021	MS/1251/SG/0874/YRS/2021
3	Sankuru – Lodja Bena Dibele	11 to 20 June 2021	MS/1251/SG/0876/YRS/2021
4	Tshopo – Kisangani Makiso	11 to 20 June 2021	MS/1251/SG/0875/YRS/2021
5	Kinshasa	11 to 20 June 2021	
6	Kongo Central	11 to 20 June 2021	
7	South Kivu	11 to 20 June 2021	

Phase IIb: deployment of supervisors and trainers: from 01 August to 03 September 2021

No.	Province–City/Health zone	Time frame	Mission order No.
1	North Kivu – Goma	01 to 20 August 21	MS/1251/SG/1641et 1648/LOP/2021
2	South Kivu – Bukavu and Uvira	21/08 to 03/09/21	MS/1251/SG/1641et 1648/LOP/2021
3	Ituri - Bunia	21/08 to 03/09/21	MS/1251/SG/1646/LOP/2021

**Result # 6: Daily case notification reports as well as weekly situation reports are shared in real time**

Monitoring and supervision of active case finding activities are done on a daily basis with daily reporting to ensure regular notification/publication of positive and negative cases through situation reports.

Each day before 5pm, each targeted health zone transmits an Excel file containing a linear list of all the Ag-RDT tests carried out as well as a sheet of positive cases and a second sheet of negative cases to the Provincial Health Divisions (DPS), which then transmits it to the national project coordination office. The national Ag-RDT case finding coordination office sends the completed linear lists of all provinces by health zone to INRB and the Technical Secretariat for validation and compilation with other notification sources before official publication the next day.

The officially published data are then encoded in the national linear list of confirmed COVID-19 cases in the DRC. On the other hand, the linear list and database of the Ag-RDT active case finding project in the DRC offers the advantage of containing all the data, starting from the alerts detected to the alerts investigated or not, the validated suspected cases and the high-risk contacts of confirmed cases, the suspected cases or contacts sampled and not sampled, the positive cases as well as the negative cases in symptomatic subjects re-sampled for confirmatory PCR + PCR results. A weekly situation report is produced at the end of each epidemiological week and shared with all stakeholders.

**Result # 7: At least 25,000 copies of case finding Ag-RDT guides, algorithms, standard operating procedures (SOPs) and 200,000 copies of COVID-19 case definition posters were printed and distributed**

Printed materials needed for the implementation of the active case finding project using Ag-RTDs were reproduced and distributed

- 20,000 copies A0-size COVID-19 and Ag-RDT CASE FINDING MONITORING ALGORITHM
- 5,000 DRC COVID-19 Case Finding SOP SURVEY brochures
- 50,000 copies \* 2 page COVID-19 ALERT NOTIFICATION sheet
- 50,000 copies \* 4 A3 pages DRC COVID-19 INVESTIGATION sheet
- 15,000 copies \* 2 A4 pages COVID-19 CONTACT LIST sheet
- 50,000 copies A4 pages DRC COVID-19 CONTACTS INDIVIDUAL FOLLOW-UP sheet
- 100,000 copies of the COVID-19 case definition posters distributed

In addition, printing was carried out using local photocopying machines in each WHO sub-office, not just at the printing house.

**Result # 8: A total of 80 tablets were configured with the EWARS application and distributed with supplies of communication credits and internet megabytes**

The setup to install the EWARS application with the electronic Ag-RDT investigation and screening forms in the 80 tablets was effective, however the system only worked for three months and then we had a technical problem that we have not been able to fully fix to date. Thus, we reverted to using hard copy forms and Excel databases. The digitization of this activity is necessary, but in the meantime it is an operational challenge due to the large number of health zones and internet network coverage needed.

**Figure 4: Illustrative images of active case finding activities for COVID-19 cases in DRC**

*Une équipe multidisciplinaire de recherche active*



*Un prélèvement naso-pharyngé pour TDR-Ag*



*Formation pratique au laboratoire*



*Pratique en groupe de 10 - 15 personnes au labo*

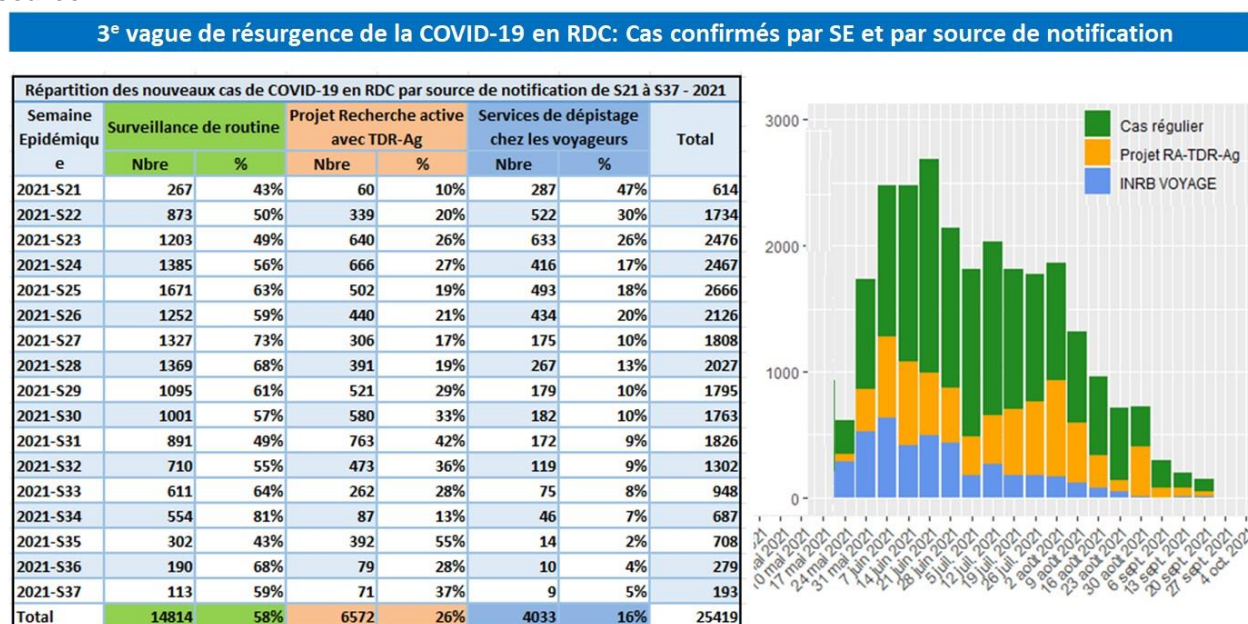


## IV. Effects and impact of the project at the national and regional level

### Contribution of Ag-RDTs to the diagnosis of COVID-19 in the DRC

As of 19 September 2021, the use of Ag-RDTs has contributed to the early detection of more than 25% of new cases in the community at the national level during the last 17 weeks of the 3rd wave of COVID-19 resurgence in the DRC, with a significant overall increase in the number of confirmed cases detected, from 614 positive cases notified at W21 to 2,666 cases notified at W25. The turnaround time for Ag-RDT results is < 24 hours for over 90% of samples compared to an average of 3 days for PCR.

**Figure 5: Distribution of confirmed cases of the 3rd wave of COVID-19 from W21 to W37 2021, by reporting source**



Active case finding of COVID-19 cases using Ag-RDTs has become one of the main sources of early detection and management of new COVID-19 cases in the community in DRC.

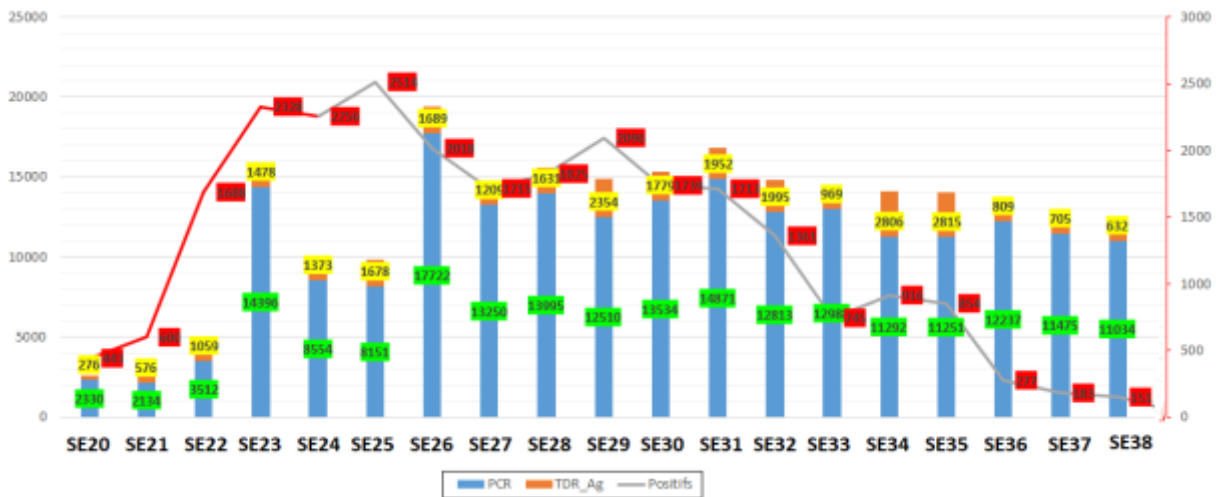
From W21 to W37: A total of 25,419 new confirmed cases were officially reported, of which

- 14,814 new cases or 58% were confirmed through routine monitoring - regular cases
- 6,572 new cases or 26% were confirmed through active case finding using Ag-RDTs
- 4,033 new cases or 16% were confirmed by screening services for travelers

In addition, from January to June 2021, a total of 105,283 diagnostic tests for COVID-19 were performed in the DRC, including 88,707 (84%) PCR and 16,576 (16%) Ag-RDTs (Table II).

**Table II: Contribution of Ag-RDTs to the diagnosis of COVID-19 in the DRC from January to June 2021**

Period	Total # of samples tested for COVID-19 (PCR and Ag RDT)	SARS-CoV-2 testing using PCR					SARS-CoV-2 testing using Ag RDT				
		Total	%	Positive	Negative	Positivity	Total	%	Positive	Negative	Positivity
Janvier 2021	19404	17464	90%	4492	12972	26%	1940	10%	499	1441	26%
Février 2021	14855	11155	75%	2785	8370	25%	3700	25%	335	3365	9%
Mars 2021	11195	8348	75%	1880	6468	23%	2847	25%	357	2490	13%
April 2021 - May 2	10136	8891	88%	1668	7223	19%	1245	12%	139	1106	11%
May 3 - 30, 2021	9492	8236	87%	1494	6742	18%	1256	13%	150	1106	12%
Up to 27 June 2021	40201	34613	86%	7026	27587	20%	5588	14%	1897	3691	34%
<b>Total</b>	<b>105283</b>	<b>88707</b>	<b>84%</b>	<b>19345</b>	<b>69362</b>	<b>22%</b>	<b>16576</b>	<b>16%</b>	<b>3377</b>	<b>13199</b>	<b>20%</b>



There has been an ever-increasing capacity to test (PCR and Ag-RDT) and detect confirmed cases of COVID-19 over the last 19 weeks from W20 to W37

It should be noted that although the number of Ag-RDTs remains lower than the number of PCR tests performed, the proportion of new confirmed cases detected by Ag-RDT has been increasing over time. By way of illustration, here is the distribution of new confirmed cases detected by notification source during the 3rd wave of COVID-19 resurgence in DRC:

- At the beginning – W21: 43% by routine, 10% by active case finding using Ag-RDTs and 47% by COVID-travel
- At peak time – W25: 63% by routine, 19% by active case finding using Ag-RDTs and 13% by COVID-travel
- Towards the end – W35: 43% by routine, 55% by active case finding using Ag-RDTs and 2% by COVID-travel

**As of 14 June 2021, taking into account orders from all partners and agencies, a total of 233,150 Ag-RDTs have been received at country level in DRC out of a total of 468,125 Ag-RDTs ordered. Actual deployment efforts by various partners are ongoing and the completeness of reporting is not yet at its optimal level.**

**From early detection in the community to the management of confirmed cases by a multidisciplinary team at the level of each targeted health zone**

This active case finding strategy is in fact a comprehensive approach ranging from early detection to the case management of confirmed COVID-19 cases at home or in specialized healthcare facilities, including confirmatory testing of suspected cases and high-risk contacts of each confirmed case identified, isolation of cases with decontamination of all environments frequented by each confirmed case as well as follow-up of quarantined contacts. Thus, this innovative project is conducted by multidisciplinary rapid response teams in each of the targeted health zones, composed of an epidemiologist, two laboratory technicians, a hygienist or IPC specialist, a clinician specializing in medical management, a communicator, a psychologist or psycho-social worker, and a site coordinator.

**Significant improvement in test result turnaround time (< 1 hour) and prompt interruption of transmission chains for each confirmed case**

**Improvement in the number of alerts detected and investigated, and especially in the number of suspected cases tested**

According to available data, the proportion of suspected cases tested by PCR in the laboratory is about 74% compared to 95% of suspected cases identified by active case finding and tested with Ag-RDTs performed outside the laboratory at the level of health facilities or in the community.

**Improved performance of Ag-RDTs by combining certain samples with PCR**

From January 25 to June 26, 2021, the partial data available from the project indicates in particular that **13% of the 1,842 symptomatic suspected cases with negative Ag-RDT results re-tested, came back PCR positive. These cases, confirmed by laboratory PCR, were found and put on treatment.**

# Conclusion, lessons learned, challenges and perspectives

## Partial conclusion

Given the need to increase the COVID-19 diagnostic capacity in DRC, scaling up the correct use of Ag-RDTs is a relevant and complementary alternative to RT-PCR, which remains a reference method but one with limited access. The strategy for the effective implementation of the scale-up of Ag-RDTs in DRC is based on the reinforcement of the active case finding and systematic testing of suspected cases and high-risk contacts of confirmed cases identified in health facilities and in the community. Unfortunately, asymptomatic or paucisymptomatic infected persons can continue to spread the disease in the community without necessarily seeking care at the health facility level. This community-based strategy is in fact a holistic approach to the response to COVID-19 that ranges from early detection of symptomatic or non-symptomatic cases in the community or in health facilities to effective case management in a specialized centre or at home. Integrated public health interventions carried out by a multidisciplinary team for each confirmed case detected allow for an effective break in transmission chains. Positive cases are directly isolated and treated, while contacts are quarantined, tested, and monitored. Places frequented by confirmed cases are disinfected and physical and social distancing measures as well as vaccination are promoted in the households visited.

This innovative pilot activity has become one of the main strategies for surveillance and scaling up of Ag-RDT use in DRC, and in Africa, in the face of the evolving resurgence of COVID-19 and the circulation of variants. Indeed, DRC is considered a pioneer in Africa in the implementation of Ag-RDTs at the community level through active case finding. Based on the preliminary results obtained in DRC, this strategy has now been adopted at the regional level by WHO AFRO, with extension in 8 other African countries facing the resurgence of COVID-19.

In the DRC, up to WE37, the active case finding project using Ag-RDTs enabled early detection of 26% of all confirmed cases notified in the DRC since January 2021. This activity is being implemented by the Ministry of Health with technical and financial support from WHO in 39 HZ in 9 provinces (compared to 37 HZ and 8 provinces initially planned).

## The results obtained essentially suggest

- Improvement in the rate of early detection of confirmed cases in the community with rapid case management at home or at the treatment centre, associated with disinfection of visited places, follow-up and testing of all high-risk contacts for each confirmed case;
- Effective scale-up of Ag-RDT use and improved access to reliable, rapid, and free diagnosis for more people in the community;
- Improvement in the number of alerts detected and investigated, and especially in the number of suspected cases tested. The use of Ag-RDTs has increased the proportion of suspected cases and high-risk contacts tested in the community and in health facilities;
- A significant improvement in test result turnaround time and prompt interruption of transmission chains for each confirmed case;
- Improved Ag-RDT performance by re-sampling symptomatic cases with negative Ag-RDT results for confirmation by PCR.

Based on the results obtained, the strategy of active case finding in the community and in healthcare facilities through the use of SARS-CoV-2 Ag-RDTs has effectively contributed to the end of the 3<sup>rd</sup> wave of COVID-19 resurgence in the DRC through the early detection of a significant number of symptomatic, pauci- or asymptomatic infected persons, associated with prompt case management and integrated public health interventions aimed breaking the COVID-19 chains of transmission around each confirmed case in the community.

## Some lessons learned from the DRC experience

- Given the large proportion of over 50% of infected persons who are asymptomatic or pauci-symptomatic, and who continue to potentially spread the disease in the community without perceiving the need to seek care at a health facility, relevant surveillance strategies should include a holistic community-based approach to the COVID-19 response for early detection of infection with rapid case management.
- Given the results obtained, the focus can be at the community level, but it is important to combine this with facility-based component of active case finding.
- Training for the correct and effective use of Ag-RDTs should not be limited to laboratory technicians but should also take into account other end-users, healthcare providers and epidemiological surveillance officers or field epidemiologists at the operational level. Supervision of the performance of Ag-RDTs by end-users outside the laboratory should be under the mandatory supervision of a qualified laboratory technician or medical biologist experienced in quality assurance.
- It is not enough to just test, clear mechanisms should be in place to directly break the chains of transmission through integrated public health interventions conducted by small, local multidisciplinary rapid response teams.
- Scaling up of Ag-RDTs is not the same as distributing these tests based on a list of healthcare facilities. Also consider the community and specific settings such as nursing homes, prisons, and universities or schools
- Suspect cases should ideally be tested within the first 5–7 days of symptom onset. Cases with positive Ag-RDT results would not require PCR; however, all suspect cases with negative Ag-RDT results should be re-tested by PCR, as well as 10% of Ag-RDT positive cases. The evaluation of the performance of Ag-RDTs should be done in each province according to its particular epidemiological situation but also for each type of Ag-RDT separately.
- It is important to rationalize the use of Ag-RDTs by respecting case definitions and the eligibility of persons to be tested. In the DRC, it is not recommended to test, for example, all asymptomatic contacts, only direct high-risk contacts of confirmed cases. Ag-RDTs should also not be used to test confirmed cases under treatment or asymptomatic international travellers at point of entry.
- With the opening of drinking establishments, the non-application of barrier measures and the low COVID-19 vaccination coverage in DRC, we should intensify the preparation of a possible 4th wave, which requires massive and early detection of cases.

## Challenges and perspectives

- Lack of security in some active COVID-19 zones in the east of the country
- Geographic coverage is still weak compared to needs, especially if there is a resurgence - 4th wave. More funds must be mobilized to expand the active case finding project using Ag-RDTs in more health zones, mainly in Kinshasa province
- Investigate the problem of low Ag-RDT sensitivity compared to manufacturers' and theoretical estimates
- Revise the current algorithm based on lessons learned: test ALL Ag-RDT negative cases or test mainly symptomatic cases within 5–7 days of symptom onset; re-test all suspected Ag-RDT negative cases and 10% of Ag-RDT positive cases, etc.
- Schedule and conduct external quality assessments
- Develop a concept note for the extension of the project in 106 HZs for a period of one year

While considerable progress has been made, much remains to be done to fill the gaps and prepare for the 4th wave of COVID-19 resurgence in the DRC coupled with the circulation of current variants of the SARS-CoV-2 virus: Delta, B.1.617.1 - predominant in the DRC; Beta, B.1.315 and Alpha, B.1.1.7. The first two phases were funded by GAVI (16 HZs – USD 340k) and FIND (27 HZs – USD 245k). A third funding phase is underway with funds from WHO AFRO (USD 200k) and in the future a concept note for scaling up in 106 HZs with USD 10 million has been submitted to WHO AFRO in order to mobilize funds from partners. We sincerely thank the various partners of the Ministry of Health who have supported us so far and hope to mobilize more resources to cover all active health zones in the country in anticipation of a possible 4th wave of COVID-19 resurgence in DRC.

