



South Africa Differentiated Service Delivery Adaptations During COVID-19 for Adults Collecting Medication for HIV and other Chronic Conditions

Right e-Pharmacy

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WHO WE ARE

- Right e-Pharmacy (REP) is a subsidiary of the NPO, Right to Care
- Lean team with expertise in various fields from IT, development, pharmacy and specialized healthcare programs.
- Solution provider for last mile dispensing and pharmaceutical services
- Uses innovative approaches and technology and adapt it for a specific health space
- Collaborates with partners and DoH to reach specific health goals for Provinces and the country



OUR LOCATIONS



- Gauteng, SA
- Free State, SA
- Mpumalanga, SA
- Maseru, Lesotho
- Ndola, Zambia



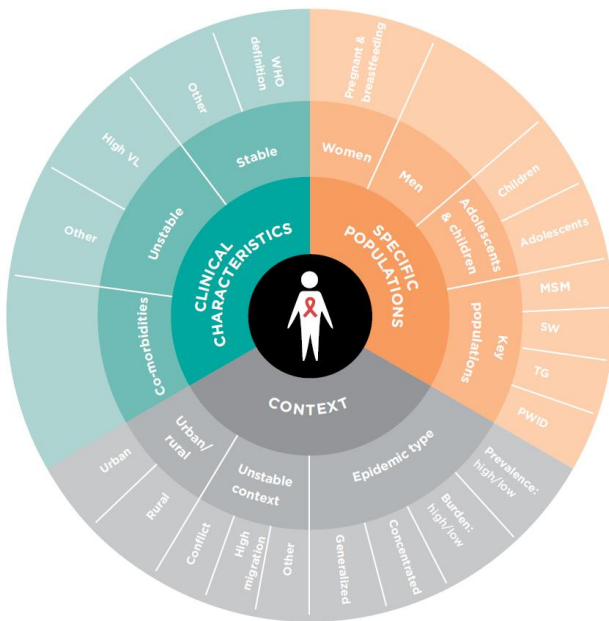
WHAT WE DO

- Implementation of pharmacy solutions for public health patients
- Focus on patients with chronic conditions
- Using advanced technology (robotics) and software for new decanting strategies
- Collaboration with NDoH to set up last mile dispensing and medicine collection services
- Provide training, support, and sustainable operation plans for all implemented projects
- General HIV services and capacity building
- Data analytics
- Responses to health emergencies





Populations our model serves



| Collect & Go Smartlockers with CCMDD medicine supply | Collect & Go Smartlockers with CDU medicine supply (Bloemfontein/Mangaung) |
|--|---|
| Stable ART & NCD patients (according to CCMDD guidelines) | Mostly NCD patients with several co-morbidities. Controlled, but need specialist care |
| Mainly HIV patients, who can have co-morbidities. Also NCD patients (all chronic conditions) | Mainly NCD patients with some having HIV |
| Adults | Adults |
| Focus on high burden areas where resources are limited. Both urban and rural | Urban setting with the potential to serve outlying, rural areas |



PURPOSE OF SMARTLOCKERS (pre COVID-19)

- The involved DSD model focuses on the decanting of stable chronic patients to external pick-up points (PuPs).
- NDoH has already implemented a model with strong support called Central Chronic Medicine Dispensing and Distribution (CCMDD). 2,296,219 patients active on CCMDD nationally
- A specific need to improve this model exist which involves implementation and scale-up of external PuPs.
- The smartlocker PuP solution was not yet implemented pre COVID-19 for the CCMDD program and was, in fact, deployed as an emergency response to provide external PuPs with minimal interpersonal contact.
- The Central Dispensing Unit (CDU) supply chain system with 5 locker sites was already operational pre COVID-19 in Bloemfontein and focused on providing convenient and fast pick-up options for patients enrolled to the CDU.
- The CDU operated on a much smaller scale, serving about 300 patients per month

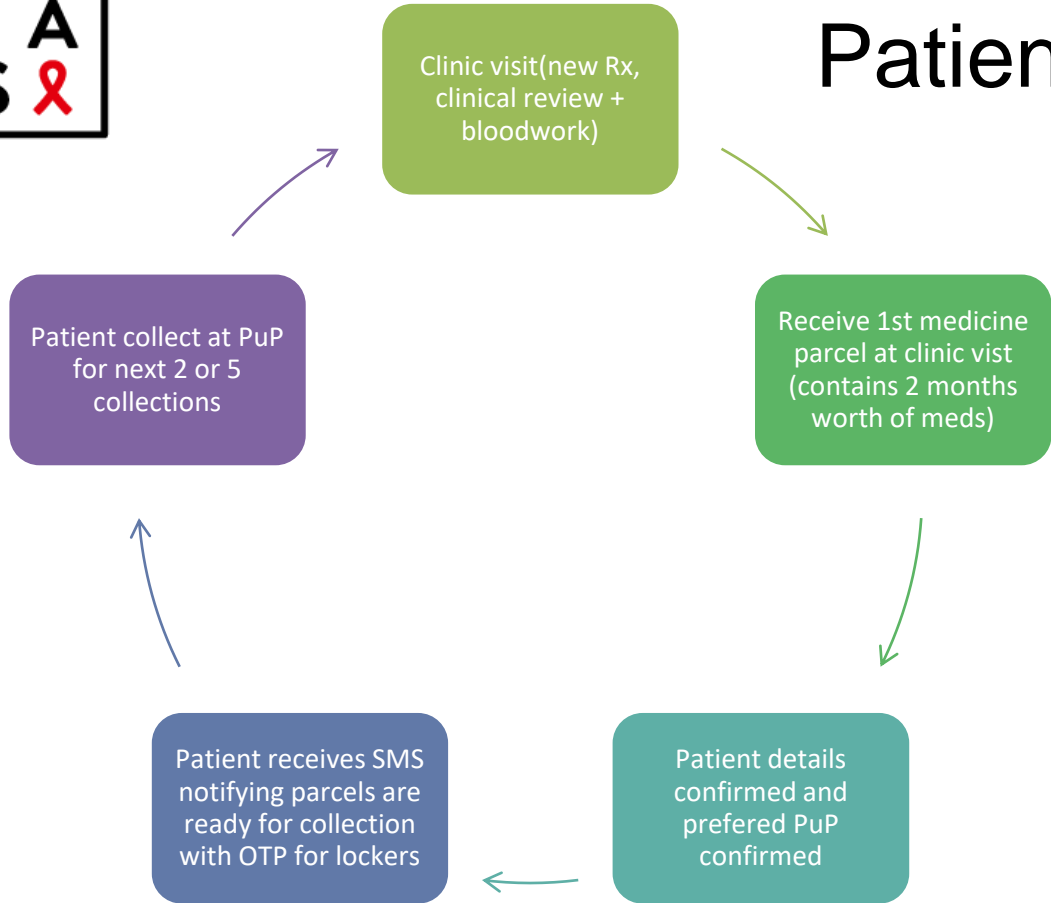


Description of Collect & Go SmartLockers DSD model

- **Collect & Go SmartLockers** act as external PuPs for the CDU and CCMDD supply systems. Situated at healthcare facilities, but away from queues and does not require staff intervention
- Two primary DSD drug supply systems: CDU and CCMDD
- **CDU- Central Dispensing Unit,**
 - Processes, dispenses and dispatches patient scripts to PuPs, including smart locker sites
 - Service performed and co-ordinated by Righ e-Pharmacy (REP)
- **CCMDD – Central Chronic Medicine Dispensing and Distribution,**
 - Contracted 3rd party service provider for NDoH
 - Processes, dispenses and dispatches patient scripts to contracted PuPs
 - SmartLockers as PuPs for CCMDD only deployed in response to COVID-19
- **CCMDD & CDU procedures and scripting structure pre-COVID:**
 - Patients receive scripts valid for 6 months, after which they need to be clinically re-evaluated
 - 2MMD
 - Patients must be clinically stable on their medication
 - Defaulters (more than 7 days late for collection) will be removed from the program and encouraged to go back to their facilities after tracing



Patient visit cycle

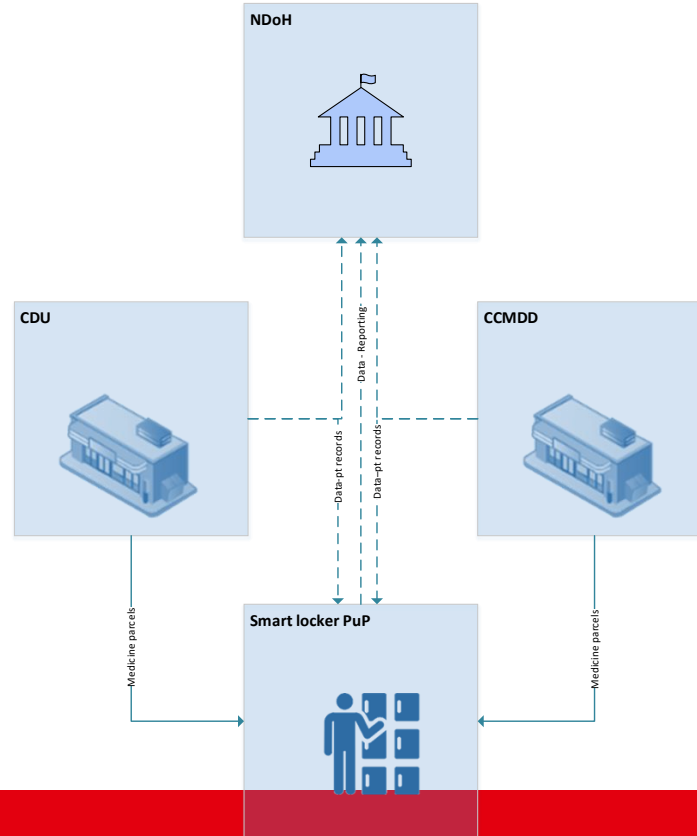


SA usually has a 6 months multi month scripting cycle. In response to COVID this was changed to a 12 month cycle



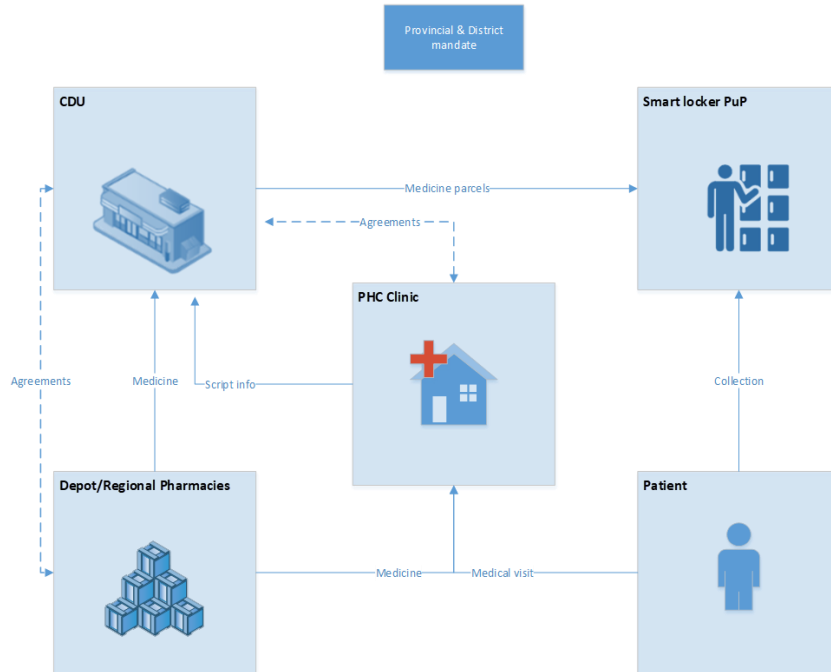
Supply systems

CDU & CCMDD feeding medicine supply into locker PuPs:





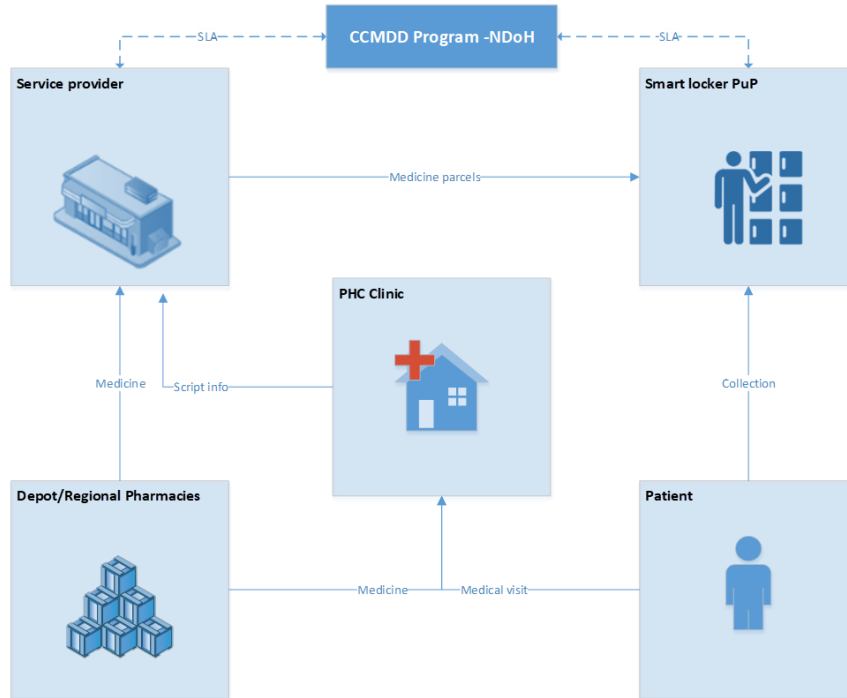
ART refill supply chain



CDU:
(as implemented for
FS, Bloemfontein)



ART refill supply chain



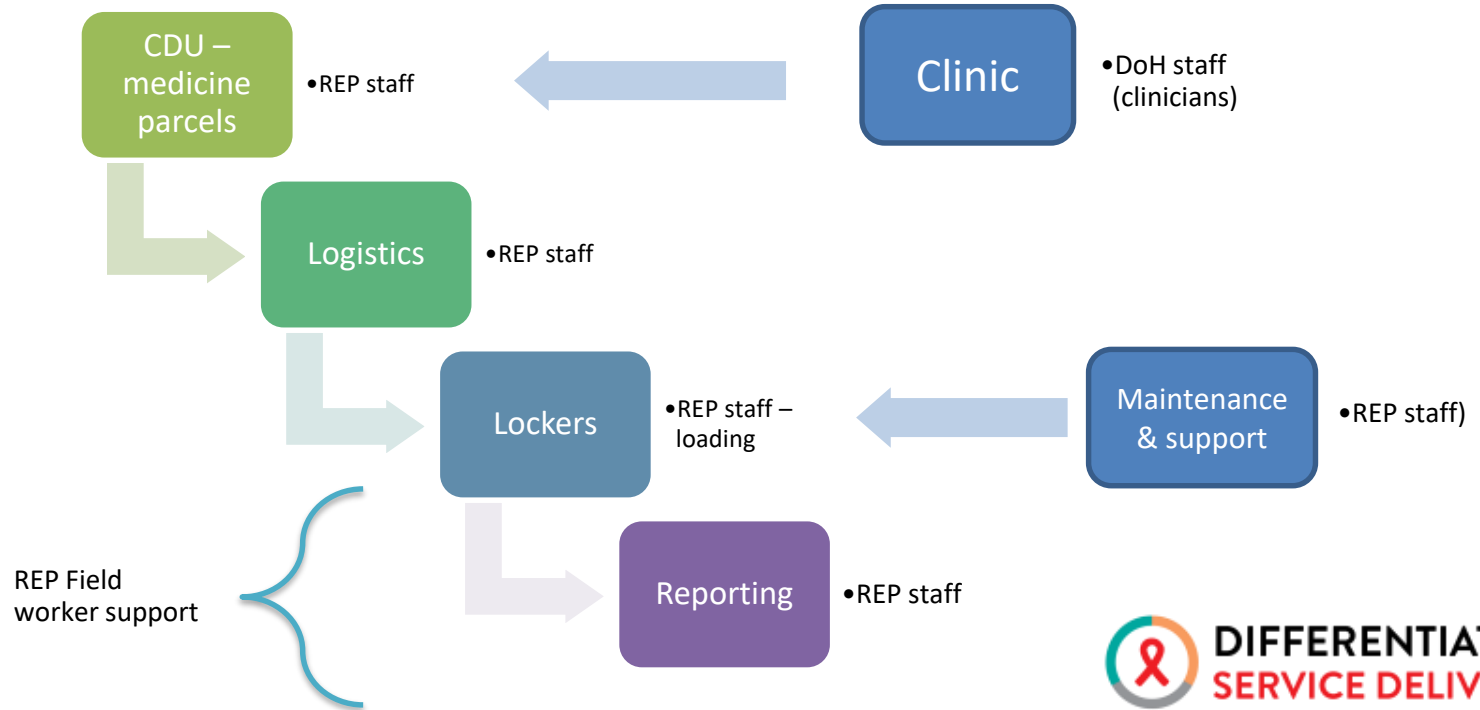
CCMDD:
(as implemented for
FS, GP, MP)



Roles and responsibilities

REP: Right e-Pharmacy
CDU: Central Dispensing Unit
DoH: Department of Health

CDU:

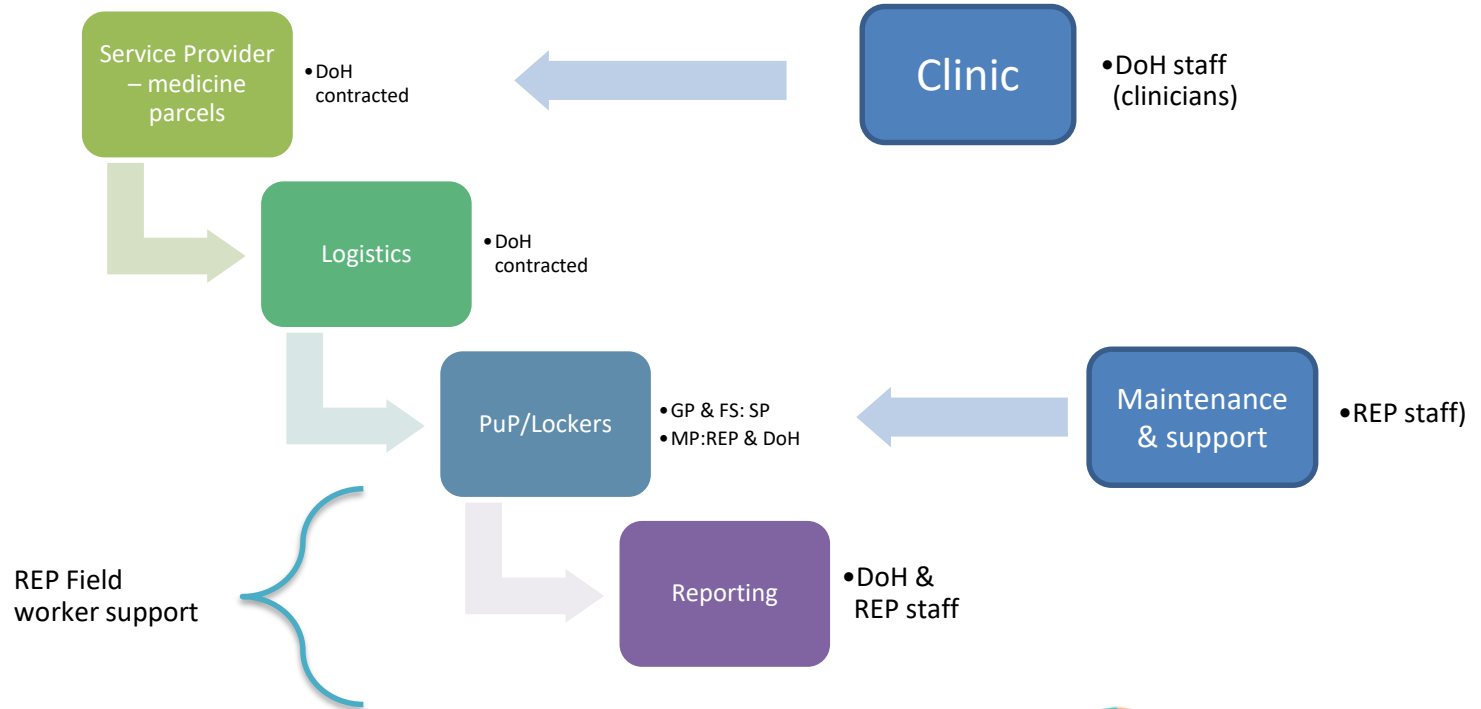




CCMDD:

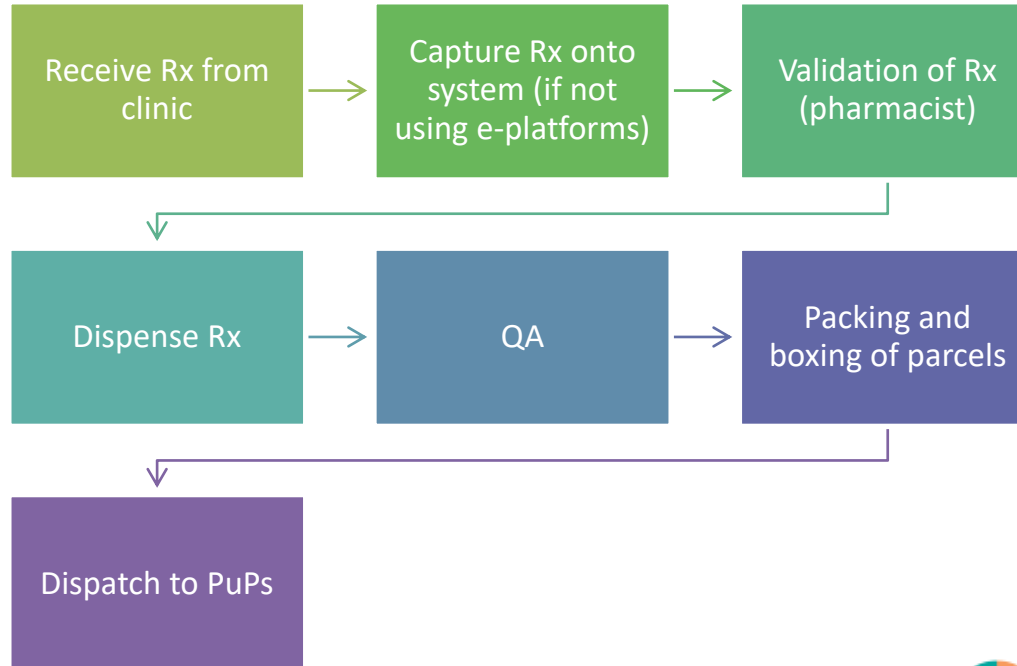
Roles and responsibilities

REP: Right e-Pharmacy
PuP: Pick up Point
DoH: Department of Health
SP: Service Provider



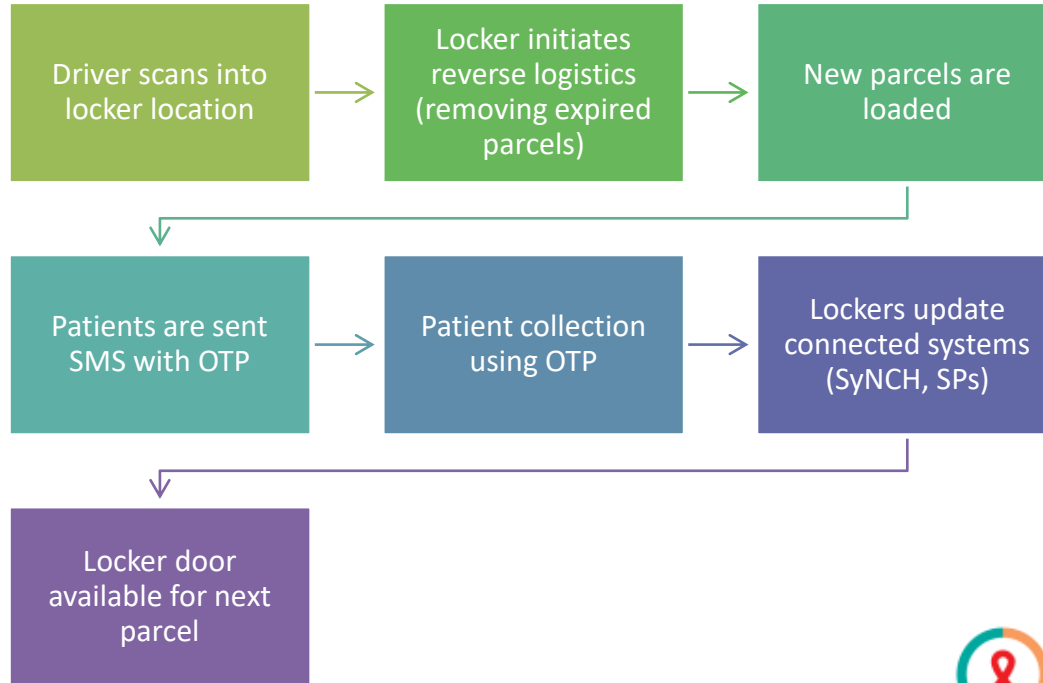


Process flow: From clinic script to supply by Locker PuP by CDU/CCMDD



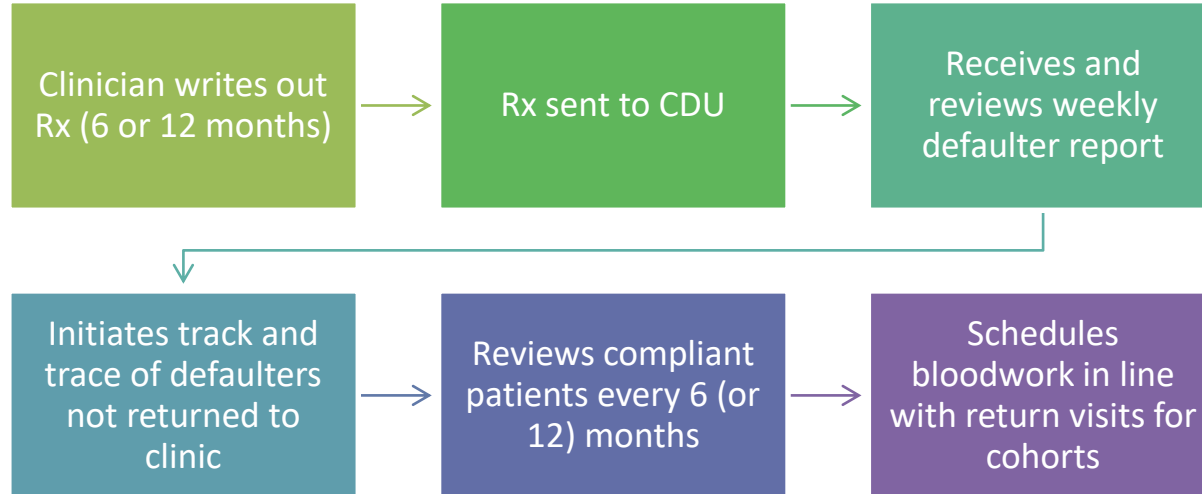


Process flow: From placing refill in Locker PuP to patient collection



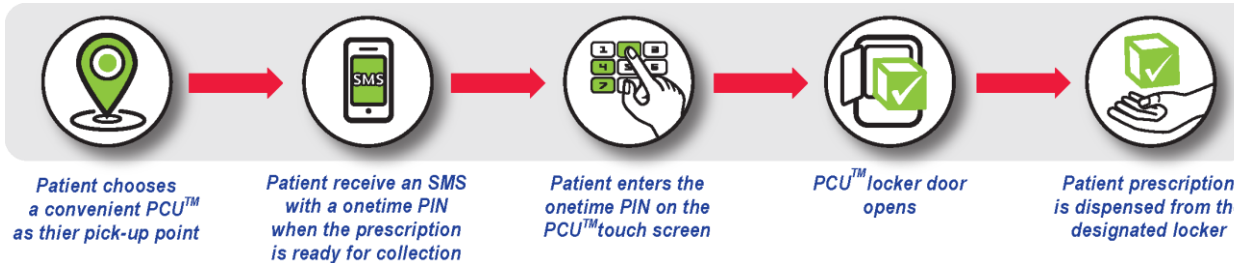
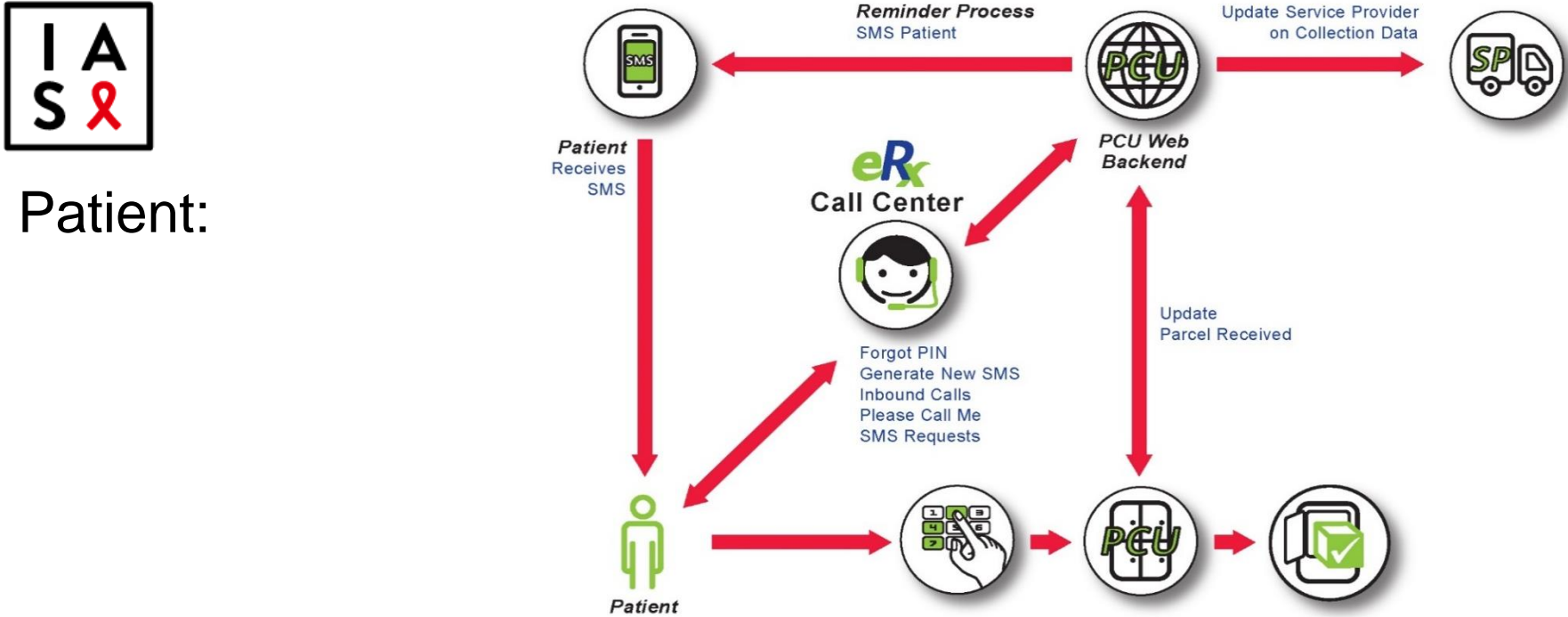


Process flow: Communication with clinic





Patient:





Location of locker sites

Free State (13 sites)

Public facility based 

Bohlokong Clinic

Paballong Clinic

Phekolong Hospital

**Meqheleng Clinic
(Ficksburg)**

Harrismith Clinic

Rearabetswe Clinic

Bluegumbosh Clinic

Bolata PHC Clinic

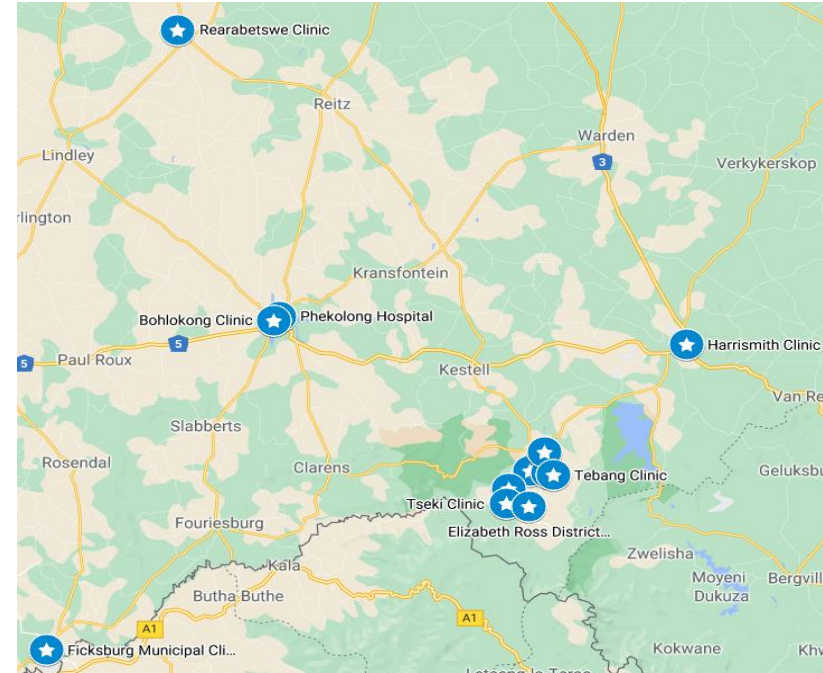
**Elizabeth Ross District
Hospital**

Phuthaditjhaba Clinic

Qholaqhwe Clinic

Tebang Clinic

Tseki Clinic





Mpumalanga (11 sites)

Public facility based

Cottondale Clinic

Arthurseat Clinic

Bhuga CHC

Kabokweni CHC

Kanyamazane CHC

Phola Nsikazi CHC

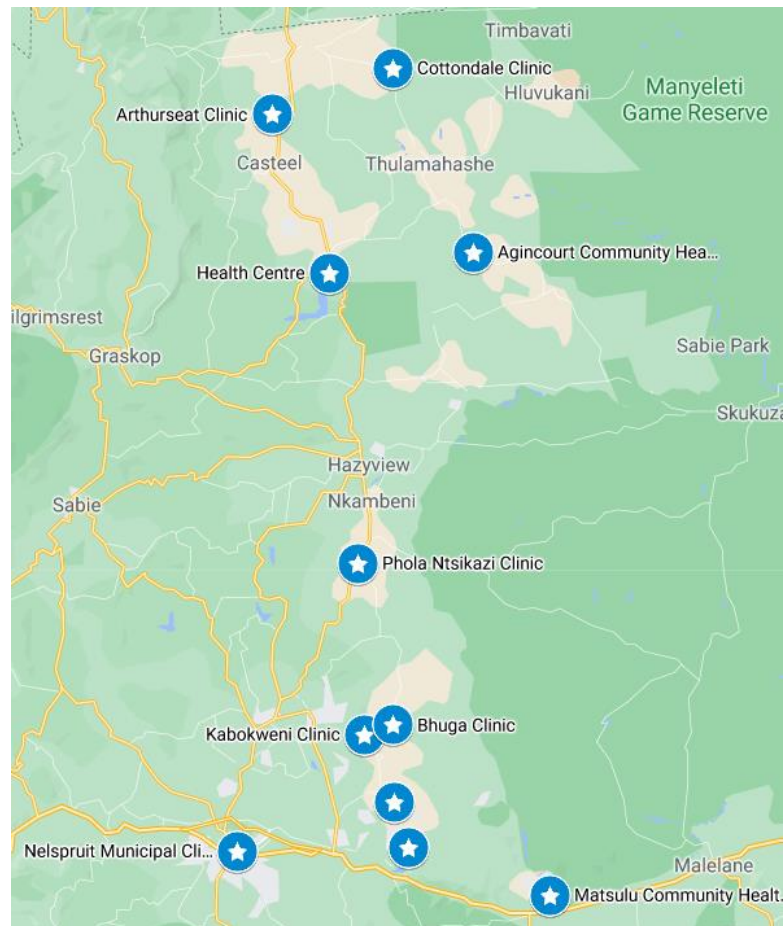
Maviljan Clinic

Matsulu CHC

Msogwaba Clinic

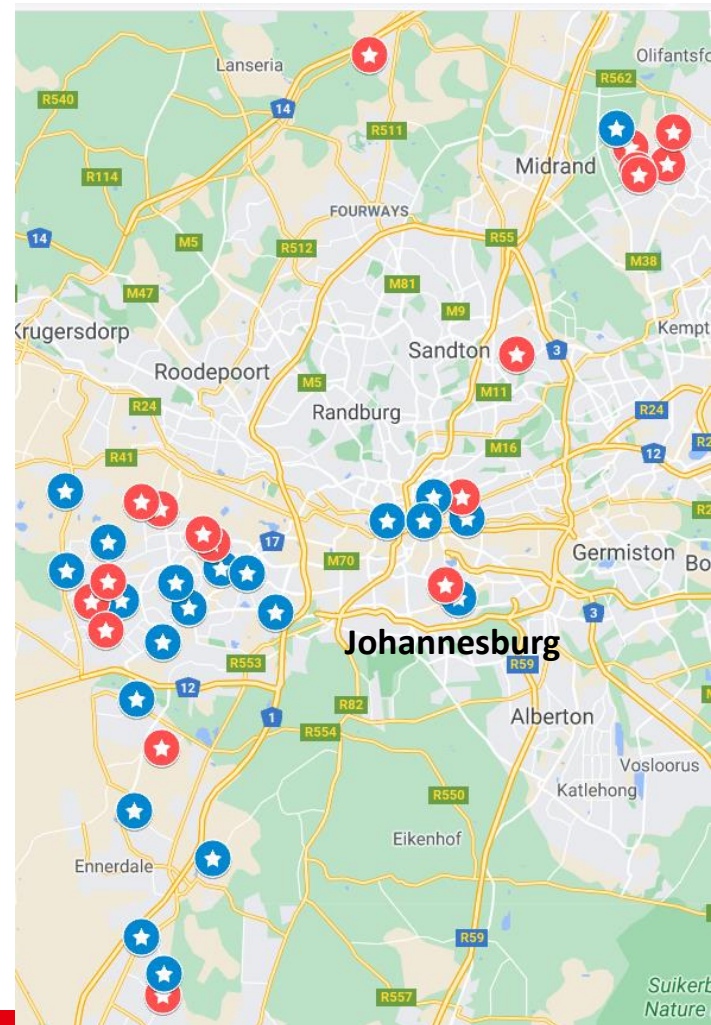
Nelspruit CHC

Agincourt CHC



Gauteng (39 sites)

| Public facility based ★ | Private based 🚑 |
|--|---|
| Alex CHC | Thusong Youth Centre |
| ENNERDALE EXT 8 Clinic | Kennets Computers |
| ENNERDALE EXT 9 Clinic | Dlamini Drive Surgery (Dr Makoti Surgery) |
| 1Health Pharmacy | Kuya Pharmacy |
| Hillbrow CHC | MediCure 24 |
| Jeppe Clinic | Ntsika - Private Nurse Practitioner |
| Mayfair Clinic | Rider Medical Centre |
| Rosettenville Clinic | Dr Amod Ext 10 |
| South Rand Hospital | Dr Amod Ext 1 |
| Lenasia Ext 5 Clinic | Rahman A Dr |
| Lenasia South CHC | In Touch Holdings |
| Imbalenhle Clinic | Dr Jivhuho |
| Weilers Farm Clinic | Dr Mabela Site 1 (Braamfischer Medical Centre) |
| Chiawelo CHC | Dr Mabela Site 2 (El Medications) |
| Chris Hani Baragwanath Academic Hospital | Dr NS Mogodi |
| Mandela Sisulu Clinic | Dr T Mabaso |
| Mofolo South Clinic | Dr TS Nefolovhodwe (Prosperity Health) |
| Orlando Clinic | Tsakani Ronald Mabunda Clinic (Mhlave Pharmacy) |
| Simphumilile Clinic | |
| Tladi Provincial Clinic | |
| Tshepisoong Clinic | |





CDU & locker: Mangaung (5 sites)

Public facility based 

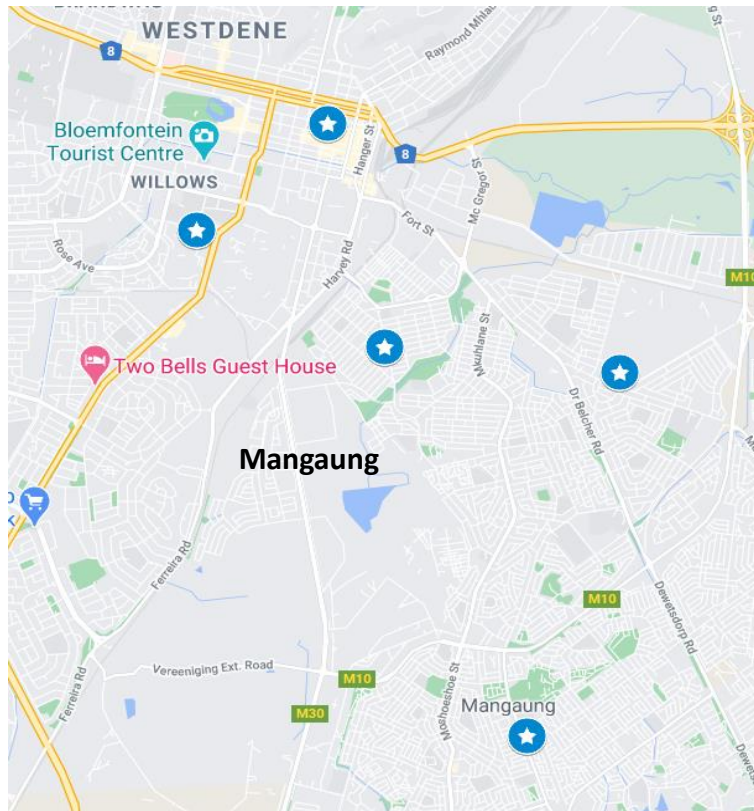
Twin City Shopping Centre

MUCPP CHC

Batho Clinic

Gabriel Dichabe Clinic

National District Hospital



**DIFFERENTIATED
SERVICE DELIVERY**

www.differentiatedservicedelivery.org



Locker location rationale



Decision of placement lies with Province and District DoH officials



Location based on needs assessment to identify underserved areas



In some cases (like MP) the best option in rural areas are the clinics



While privately placed lockers do decant patients away from facilities, there is a significant number of patients that prefer the location of the clinic



Placing lockers at clinics alleviate the burden of serving patients that prefer to return to the clinic as the PuP



BUILDING BLOCKS (Pre-COVID)

External PUP supplied by CCMDD

| | ART refills | Clinical consultation | Psychosocial support |
|-------|---|--|--|
| WHEN | Every 2 months for a 6 month's cycle | Every 6 months | Aligned with clinical visit – every 6 months |
| WHERE | External PuPs (corporate, community, facility) | At the PHC clinic | At the PHC clinic |
| WHO | Staff working at the PuPs – Clicks, post office, community hall | Clinician | Clinician |
| WHAT | Pick up of a medicine parcel containing 2MMD | Clinical assessment, re-scripting, bloodwork if needed | As determined by the clinician upon visit |

**DIFFERENTIATED
SERVICE DELIVERY**



BUILDING BLOCKS OF COLLECT & GO SMARTLOCKERS

- Introduction of Collect & Go Smartlockers as external PuPs for CCMDD
- Deployed to underserved areas and specific high volume facilities
- Switching eligible patients onto the lockers rapidly for both CDU and CCMDD
- Integration of the lockers into current systems (SyNCH, DSV, Pharmacy Direct)
- Rapid activation and training of deployed sites
- Recruitment and deployment of fieldworkers to handhold users and escalate issues
- CCMDD made operational changes in response to COVID-19 as well:
 - Script validity extended to 12 months, ensuring patients only need to return to their clinician every 12 months for evaluation
 - Supply of 3MMD taken under consideration, but not implemented (supply chain constrictions)
 - Patients are given 14 days grace period to either side of their intended collection date to ensure they have more time to plan their medicine collection.
 - Eligible patients were switched to DTG regimens in response to drug shortages during the pandemic.



BUILDING BLOCKS (In response to COVID) FOR COLLECT AND GO SMARTLOCKER MODEL

| | ART refills | Clinical consultation | Psychosocial support |
|-------|--|--|---|
| WHEN | Every 2 months for a 12 month cycle patient notified by SMS | Every 12 months | Aligned with clinical visit – every 12 months |
| WHERE | Collect & Go lockers | At the PHC clinic | At the PHC clinic |
| WHO | Service provided by the lockers implemented by Right e-Pharmacy and supported by remote Call Centre | Clinician | Clinician |
| WHAT | Collection of medicine parcel with 2MMD of medicine, Call Centre support, pick up compliance tracking | Clinical assessment, re-scripting, bloodwork if needed | As determined by the clinician upon visit |

**DIFFERENTIATED
SERVICE DELIVERY**



COVID-19: REASON FOR ADAPTATION

- External PuPs critical response to pandemic: create capacity at facilities
- Traditional PuPs still require interpersonal contact in queues and to hand parcels off
- Collect & Go lockers fast tracked in response to solve the challenge of contact limitation while ramping up external PuPs
 - Collection takes less than a minute, decreasing interpersonal contact of patients (no queuing)
 - Smart lockers are external PuPs, increasing capacity of current clinics by decanting stable patients
 - No staff is required to hand over parcels to patients, decreasing contact with HCW, reducing risk for both patients and staff
 - Call Centre support provides the opportunity for patients to query anything regarding their medication parcels, thus providing remote support where needed
 - Accurate data and trend tracking to identify potential defaulters and general patient behaviour



COVID-19: SUMMARY OF ADAPTATION

- Patients already using in-facility PuP supplied by CCMDD were shifted to locker PuPs as much as possible
- Refills collected from lockers not a HCW in a designated room/pharmacy
- 12 month scripting (12MMS) reducing clinical visit to once a year
- Increased effectiveness of triggering follow-up for uncollected parcels.
- The fast tracked implementation is a collaborative effort between REP, DoH and support partners to ensure seamless integration and effective change management



COVID-19: QUANTITATIVE OUTCOMES

- For time period: Apr 2020 – Sept 2020
- Locker PuPs supplied by CCMDD became operational from May 2020 onward
- Locker PuPs supplied by CDU in Mangaung has historical data which shows an increase in uptake
- Data collected on conditions and regimens are representative for the Provinces the data is collected in



Overview of lockers

| | April 2020 | May 2020 | June 2020 | July 2020 | August 2020 | September 2020 | Total |
|---|------------|----------|-----------|-----------|-------------|----------------|-------|
| Back-end drug supply system to lockers (parcels dispensed) | | | | | | | |
| RTC CDU | 858 | 609 | 947 | 1304 | 914 | 997 | 5629 |
| CCMDD | 0 | 246 | 823 | 3309 | 3650 | 5935 | 18095 |
| Number of lockers sites by province | | | | | | | |
| Gauteng | - | 40 | - | - | - | - | 40 |
| Free State | 5 | - | - | 13 | - | - | 18 |
| Mpumalanga | - | - | 11 | - | - | - | 11 |
| Number of individual lockers by province | | | | | | | |
| Gauteng | - | 181 | - | - | - | - | 181 |
| Free State | 15 | - | - | 51 | - | - | 66 |
| Mpumalanga | - | - | 35 | - | - | - | 35 |
| Location of lockers by type of geography | | | | | | | |
| Rural | - | - | 8 | 10 | - | - | 18 |
| Peri-urban | 2 | 25 | 2 | 3 | - | - | 32 |
| Urban | 3 | 15 | 1 | - | - | - | 19 |
| Location of lockers by site | | | | | | | |
| Inside clinic building | 5 | 20 | 11 | 13 | - | - | 49 |
| Inside clinic premises but outside clinic building | - | - | - | - | - | - | - |
| Inside other government facility | - | - | - | - | - | - | - |
| Inside privately owned building | - | 20 | - | - | - | - | 20 |
| Inside privately owned premises but not requiring entry into the building | - | - | - | - | - | - | - |

**DIFFERENTIATED
LIVERY**



Costing (for Collect & Go locker PuPs)

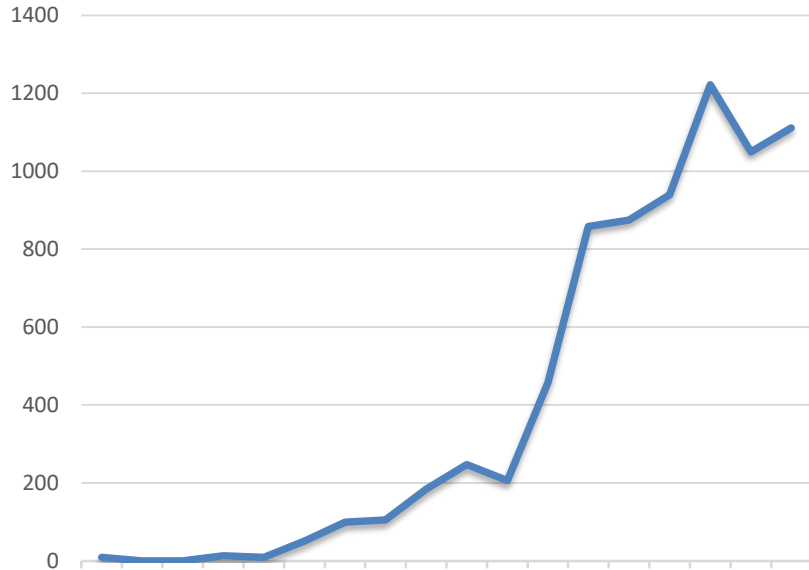
- Costing of installation of a site with 3 locker units (minimum) with annual support fees – 40 locker doors per unit, 120 doors for a site of 3 units
- Rental only for sites located outside of gvt facilities
- Lockers supplied by CCMDD receive a monthly collection fee from NDoH. The CCMDD service provider paid by DoH through SLA.
- Lockers supplied by CDU receive both a monthly dispense and pick up fee from DoH through a SLA mechanism

| Description | Units | Cost (ZAR) | | Total (ZAR) | USD (1 ZAR=15.53 USD) |
|--|-------|------------|----------|-------------|-----------------------|
| Locker - Console unit | 1 | 66,400 | Once off | 66,400 | 4,275 |
| Locker - Aircon unit | 1 | 60,000 | Once off | 60,000 | 3,863 |
| Locker - Std unit | 1 | 55,000 | Once off | 55,000 | 3,541 |
| Delivery cost | 1 | 15,000 | Once off | 15,000 | 966 |
| Maint & Support | 12 | 3,800 | p.m | 45,600 | 2,936 |
| Site agent | 12 | 6,500 | p.m | 78,000 | 5,022 |
| Rental of site | 12 | 3,500 | p.m | 42,000 | 2,704 |
| | | | | | |
| Total annual cost for setting up a 3 unit site | | | | R 362,000 | \$ 23,307 |



Collection trends: CDU

CDU monthly parcels



- Increase in CDU locker utilization observed from Apr 2020



Overview of locker PuP users (1)

| | April 2020 | May 2020 | June 2020 | July 2020 | August 2020 | September 2020 | Total |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|----------------|--------------|
| Scale up patient access | | | | | | | |
| Sex* | | | | | | | |
| Male | | | (148) 28% | (270) 31% | (412) 30% | (575) 30% | (1405) 30% |
| Female | | | (382) 72% | (613) 69% | (953) 70% | (1330) 70% | (3278) 70% |
| Sub-population* | | | | | | | |
| Adults (>24 years) | | | (516) 98% | (863) 98% | (1325) 98% | (1852) 98% | (4556) 98% |
| Children (XX-14 years) | | | (0) 0% | (0) 0% | (0) 0% | (0) 0% | (0) 0% |
| Youth (15-24 years) | | | (11) 2% | (18) 2% | (28) 2% | (47) 2% | (104) 2% |
| Average time to pick-up (in days) | 1 | 2 | 2 | 3 | 3 | 3 | 2 |
| ART/NCD/Both drugs** | | | | | | | |
| ART only | (33203) 44% | (42683) 50% | (38383) 51% | (45332) 47% | (47991) 50% | (45570) 45% | (253162) 48% |
| NCD only | (11808) 16% | (13579) 16% | (11240) 15% | (16173) 17% | (14883) 15% | (16764) 17% | (84447) 16% |
| ART + NCD drugs | (30830) 40% | (29360) 34% | (25565) 34% | (35197) 37% | (34004) 35% | (39774) 39% | (194730) 36% |
| ART drug regimens** | | | | | | | |
| TEE | (15502) 66% | (30279) 55% | (22536) 45% | (22204) 34% | (23026) 34% | (23606) 33% | (137153) 45% |
| TLD | (5800) 25% | (22436) 41% | (25832) 51% | (40468) 62% | (42315) 62% | (44970) 63% | (181821) 51% |
| Other 1 st line | (361) 2% | (563) 1% | (619) 1% | (762) 1% | (756) 1% | (811) 1% | (3872) 1% |
| 2 nd line | (1669) 7% | (1749) 3% | (1605) 3% | (2120) 3% | (2461) 3% | (2486) 3% | (12090) 3% |

*Demographic data based on available data for FS and GP. Including only patients presenting ID numbers. Data access provided to REP only from June onwards.

**Data is representative of all patients on the CCMDD programme and not specific for locker patients





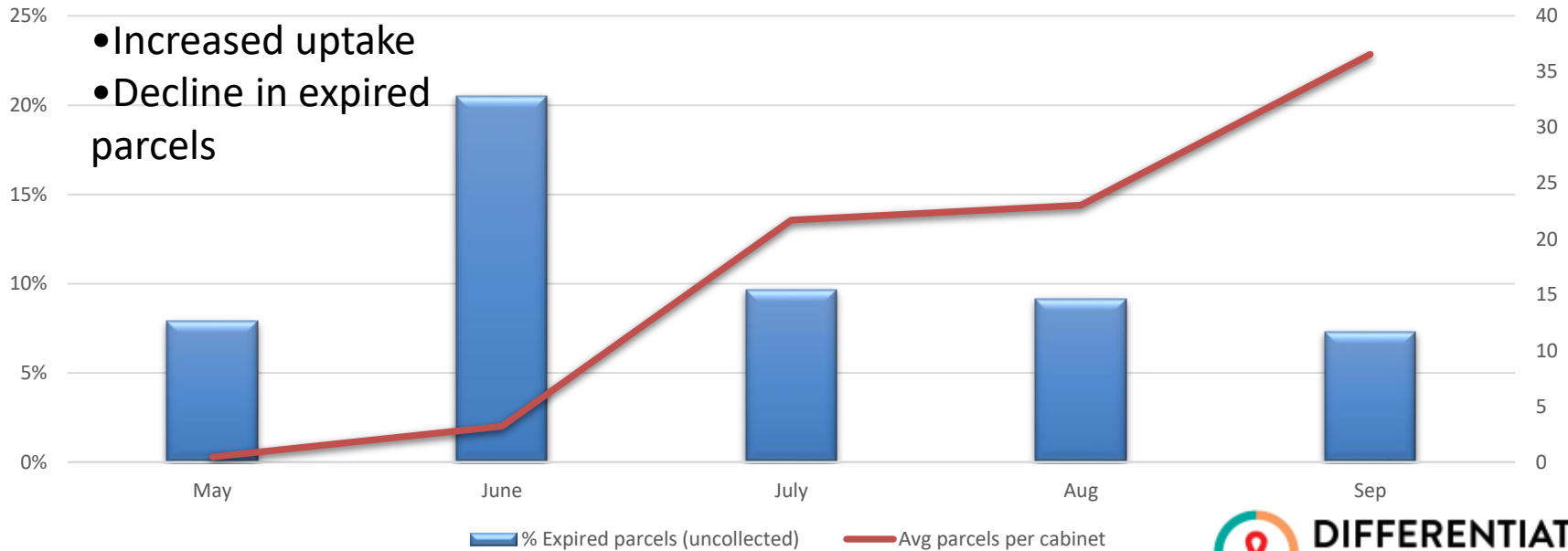
Overview of locker PuP users (2)

| | April 2020 | May 2020 | June 2020 | July 2020 | August 2020 | September 2020 | Total |
|---|------------|-----------|-----------|------------|-------------|----------------|------------|
| Collection times | | | | | | | |
| Before 7am | 9 (1%) | 77 (11%) | 170 (13%) | 779 (21%) | 943 (25%) | 1598 (28%) | 3576 (23%) |
| 7-8am | 49 (7%) | 63 (9%) | 105 (8%) | 564 (15%) | 572 (15%) | 889 (15%) | 2242 (14%) |
| 8-12am | 386 (54%) | 311 (44%) | 540 (42%) | 1550 (43%) | 1431 (39%) | 2149 (37%) | 6367 (40%) |
| 12-4pm | 246 (34%) | 214 (30%) | 403 (32%) | 649 (18%) | 683 (18%) | 866 (15%) | 3061 (19%) |
| 4-6pm | 27 (4%) | 47 (7%) | 54 (4%) | 99 (3%) | 76 (2%) | 91 (2%) | 394 (2%) |
| After 6pm | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 168 (3%) | 168 (1%) |
| Patient collection | | | | | | | |
| Number of patients with missed locker collection – expired parcels | - | 58 (8%) | 166 (21%) | 420 (10%) | 386 (9%) | 490 (7%) | 1520 (11%) |
| Average number of patients collecting parcels from single locker | | | | | | | |
| Gauteng | - | 1 | 3 | 7 | 7 | 13 | 6 |
| Free State | - | 0 | 6 | 54 | 51 | 83 | 49 |
| Mpumalanga | - | 0 | 1 | 4 | 11 | 14 | 8 |



Overall utilization of lockers

Cabinet occupancy vs expired parcels





What the Collect & Go Smart Lockers look like





Field Workers in FS



HCW in MP showing the patient brochures



HCW demonstrating a collection





Video of the solution

CDU solution in Mangaung/Bloemfontein:

<https://www.dropbox.com/s/1dj6xynd38tymt8/REP%20Bloem%202m55sec.mp4?dl=0>

Patients using the lockers:

https://www.dropbox.com/s/2ja4jp6vfgbxcst/Collect%20and%20go%20pt%20co_HD.mp4?dl=0



Patient and Healthcare worker perspectives

Patient feedback:

- “This (the locker) is outstanding. So convenient. They (the field workers) are always there to help.”
- “It makes life so easy. You just put your number, take the medicine and done!”
- “Lockers make that I do not queue. I just take the medication and go.”
- “I can collect after work or weekends. This one is open 24 hours.”
- “The call centre helps very fast when I forget my pin”

Healthcare worker feedback:

- “25 seconds. I just looked. That’s how long it takes to collect (from a locker) for the patients”
- “This locker should have come back in 1854. We love it.”
- “The patients ask for this option (the locker). They really like this thing.”
- “It helps to not have these patients on the queues anymore. I wish we can put more patients on lockers.”
- “I am impressed with how the machine works. Even when the power goes out, it still keeps working.”



Patient experience in Mangaung (Data:DNA Economics)

-Lockers supplied by CDU

- Patients experienced lowest waiting time at lockers (9 minutes) compared to clinics (112 minutes) and ATM Pharmacies (21 minutes)
- Compared to clinics, patients found lockers more convenient in terms of ease of access and cost to access
- Patients indicated that they prefer the overall locker service to clinic services



COVID-19: IMPACT ON OUR SERVICES

- Fast tracked roll-out of the locker solution across the 3 Provinces
- Increased utilization of the locker option as PuP for CCMDD and CDU supply models
- Adaptation to program specific COVID measures (12 month scripts, longer grace period etc.)
- More extensive utilization of Call Centre to attend to administrative tasks (limit direct contact)
- Utilization of Call Centre to support facilities in the follow-up of patients who miss collections
- The locker external PuPs proved to be a very good PuP solution in response to COVID-19 since it offers inherent benefits which limits interpersonal contact while decanting patients from facilities.



GOING FORWARD

- Lockers are good, effective PuP options for traditional CCMDD/CDU programs with potential for extended access beyond normal clinic hours
- Easy expansion of current sites (modular) and growth into new districts
- Future inclusion of different programs: TB, test and treat, family planning etc.
- Expansion into private sector: Hospitals, mining, ensured health space



COVID-19: CONCLUSION

- Lockers as PuPs provides a new option that benefits both patient and healthcare worker
- Partnership with CCMDD – sustainable model; SLA with DoH supports the running cost for the units.
- Change management critical to ensure good acceptance of the solution
- Connectivity of patients remains a primary concern—patients need to have a reliable cell number to receive notifications and OTPs to use the lockers