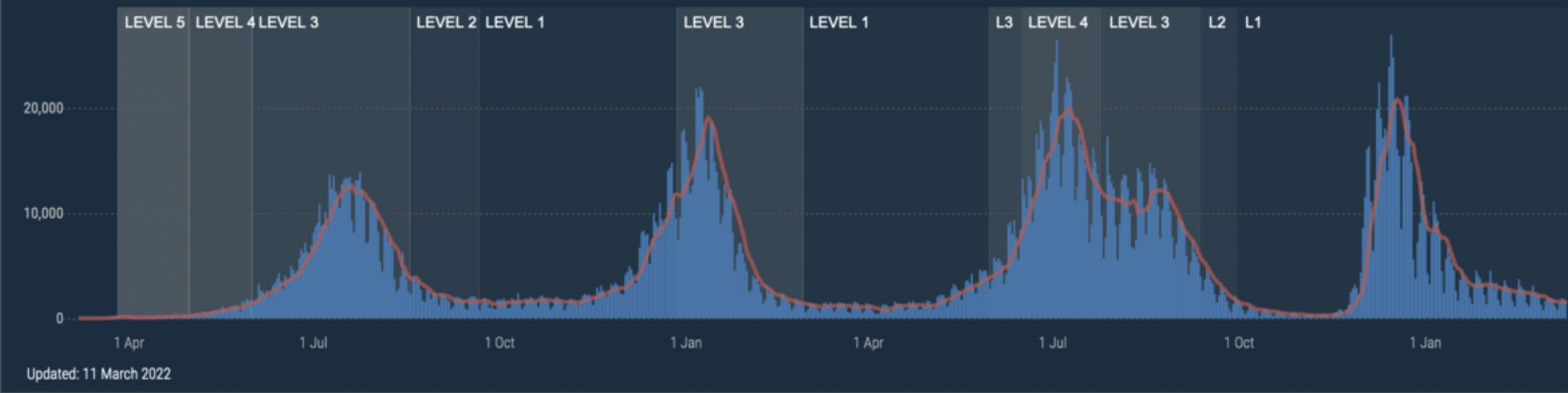


# The interactions between COVID-19, HIV and TB: effect on health service delivery

Kobus Herbst

This chart shows the daily confirmed cases since March 2020. The levels refer to the lockdown levels. Red line is the 7-day rolling average



# The Covid-19 Syndemic

- Two (or more) diseases or health conditions cluster within a specific population;
- Contextual and social factors create the conditions in which two (or more) diseases or health conditions cluster; and
- The clustering of diseases results in adverse disease interaction, either biological or social or behavioural, increasing the health burden of affected populations.

Horton, Richard. "Offline: COVID-19 is not a pandemic." *The Lancet* 396.10255 (2020): 874.

Singer, Merrill, et al. "Syndemics and the biosocial conception of health." *The Lancet* 389.10072 (2017): 941-950.

## ART retention & engagement in care

(S1 Table 20)

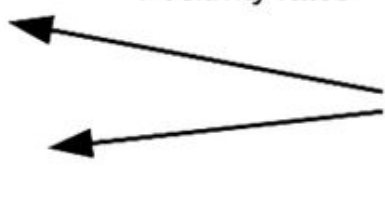
- ART dispensation/refill
- ART consultations
- ART initiations
- # of people on ART
- Risk of ART interruption
- Access to ART
- Adherence/ability to adhere
- Viral load of patients
- # of viral tests
- # of CD4+ tests
- Kept/missed HIV visits
- Access to HIV provider
- Making/keeping appointment
- ART service disruption
- Ability to come to clinic

## HIV testing & new diagnoses

(S1 Table 21)

- Facility based tests
- Testing on PrEP
- Testing at birth
- Testing in emergency dept.
- Difficulty getting tested
- Demand for testing
- Ability to provide testing
- # of new cases
- Positivity rates

**HIV/AIDS**



## Other prevention

(S1 section 10)

- Assisted partner notification
- VMMC
- PEP prescriptions
- PrEP usage/visits
- Access to PrEP
- # of PrEP patients/initiations
- # of PrEP refill lapses
- Demand for PrEP
- Ability to provide PrEP

## Clinical outcomes

(S1 Table 8)

- Treatment success completion
- LFTU
- Cure
- Death
- Treatment failure
- Treatment initiation
- MDR screening
- Sputum smears/culture
- Diagnostic delay
- Xpert MTB/RIF
- Treatment adherence
- BCG vaccine
- DOTS patients
- TB hospitalisations

## Service provision

(S1 Table 9)

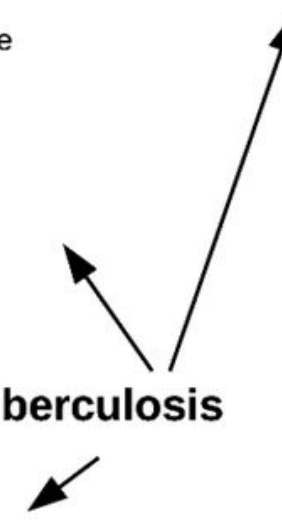
- IP care
- OP care/visits
- Reallocation of staff/funding/resources
- Reallocation of GeneXpert machines
- Self-isolation at home requested from people with TB
- Service/lab disruption
- Shortage of medical supplies/treatment
- Access to medical and non-medical support
- Diagnostic service
- Essential service for TB/latent TB
- Contact tracing
- Testing/treatment of latent TB
- Case reporting/surveillance
- Education/training/ R&D
- Program evaluation
- Availability of medication
- # of beds/staff
- TB-notifications immigrant evaluations
- Transportation problems
- Problems finding lab for ECG/blood
- Reduction in workload
- Problems collecting drugs
- Administration of injectables

**Tuberculosis**

## Notifications

(S1 Table 7)

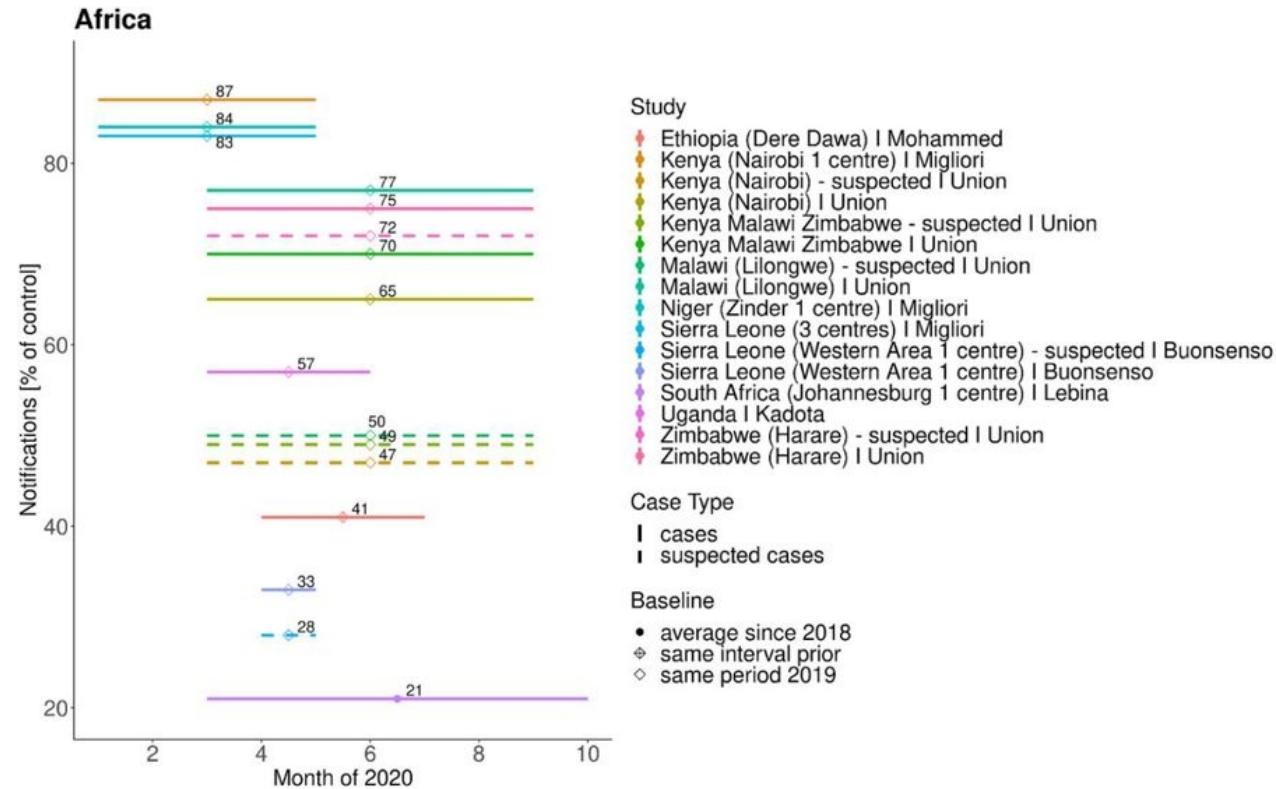
- Cases
- Incidence
- Suspected cases
- Cases per paediatric admission



Kessel, Barbora, et al. "Impact of COVID-19 pandemic and anti-pandemic measures on tuberculosis, viral hepatitis, HIV/AIDS and malaria-a systematic review." *medRxiv* (2022).

# Tuberculosis

- Modelling results
  - Disruption of services
    - 11% excess cases over 5yrs
    - 16% excess deaths over 5yr
  - Reduced case detection
    - 25% drop on average
    - 13% excess deaths over 5yrs
- Observed impacts
  - Notifications 87% to 21% decline
  - Treatment success/completion rates 17% to 0% decline



# HIV

- Modelling results
  - ART Interruption
    - Excess cases 1 to 16% over 1yr
    - Excess deaths 39% to 87% over 1yr
  - Reduced viral suppression
    - Excess cases 15% over 1yr
    - Excess deaths 18% over 1yr
- Observed impacts
  - Mixed impact on ART consultations
  - Moderate decrease in viral load Cd4 tests
  - Decrease in testing

## Study and outcome

### Difficulties with ART refill

Sanchez et al, USA

Apr 2–13, 2020

Siewe Fodjo et al, global

Apr 9 – May 17, 2020

Santos et al, global

Apr 16 – May 4, 2020

Torres et al, Brazil

Apr 16 – May 13, 2020

### Unable to get ART refill

Dyer et al, Kenya

10 first weeks of Covid-19

Santos et al, global

Apr 16 – May 4, 2020

Bogart et al, Los Angeles, USA

May – July 2020

### Decreased ability to adhere to ART

Sanchez et al, USA

Apr 2 – 13, 2020

Linnemayr et al, Kampala, Uganda

Apr 6 – 17, 2020

Siewe Fodjo et al, global

Apr 9 – May 17, 2020

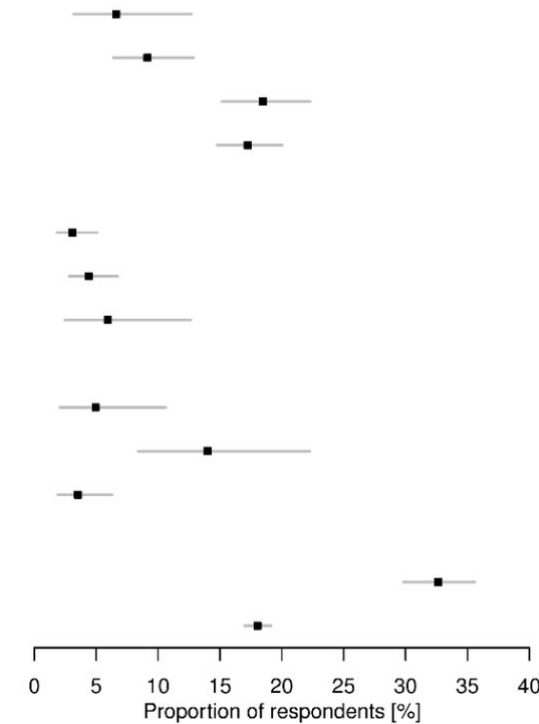
### Risk of ART interruption

Guo et al, China

Feb 5 –10, 2020

Sun et al, China

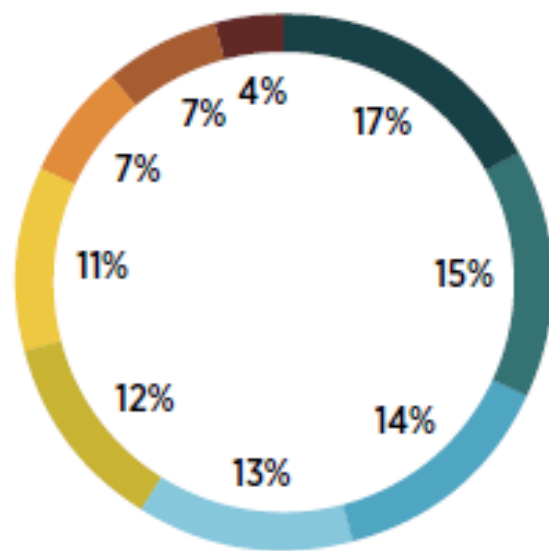
Feb 5– 17, 2020



# Global Fund Snapshot

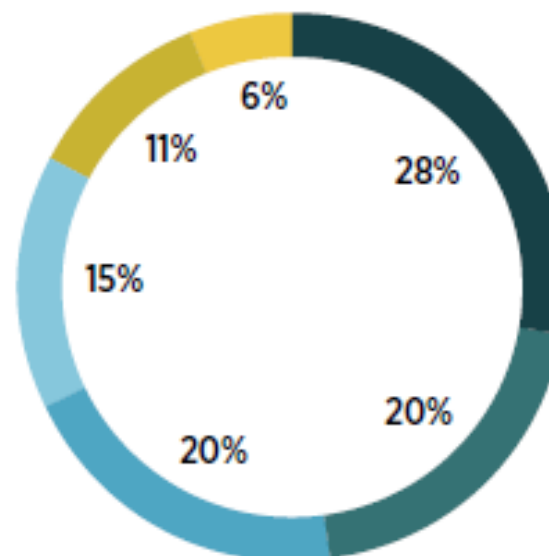
Breakdown of reasons for the change in patient attendance from April to September 2020, organized into facility reasons and community reasons, according to the perception of staff interviewed in spot-checks across 32 countries.

## Site/facility reasons



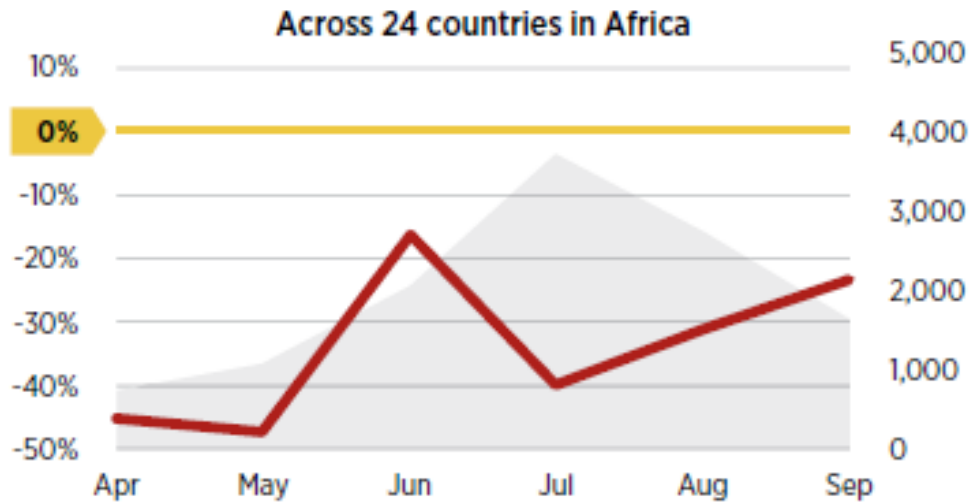
- More patients being redirected from and to other facilities
- Scope of specific services reduced
- More patients presenting with any respiratory infection symptoms
- Communications to the public about reactivation of any services that were previously suspended or reduced
- Backlog resulting from disruption of services
- Reduced general health communications campaign to promote care-seeking
- Provision of specific services completely suspended
- Reduced or changed opening hours
- Facility closure

## Individual/community reasons

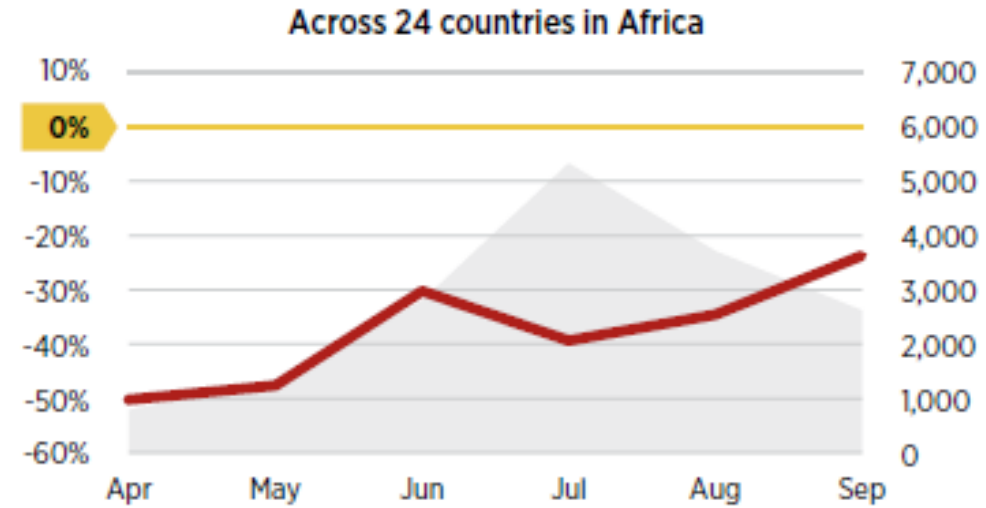


- Fear, mistrust, uncertainty of getting infected with COVID-19 from facility visits
- Disruption in public transportation
- Lockdown or stay-at-home order
- Delayed care-seeking
- Changes in recommendations to the public for mild illness and elective care
- Other

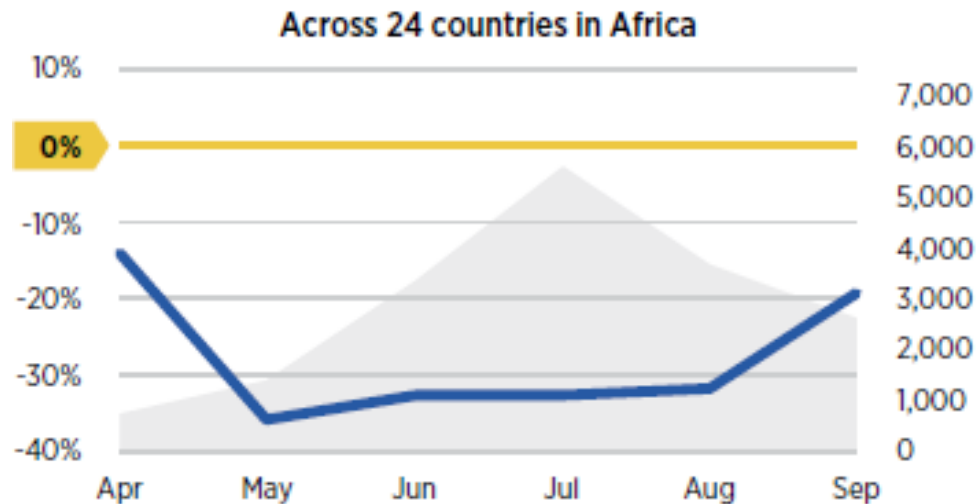
## HIV Referrals



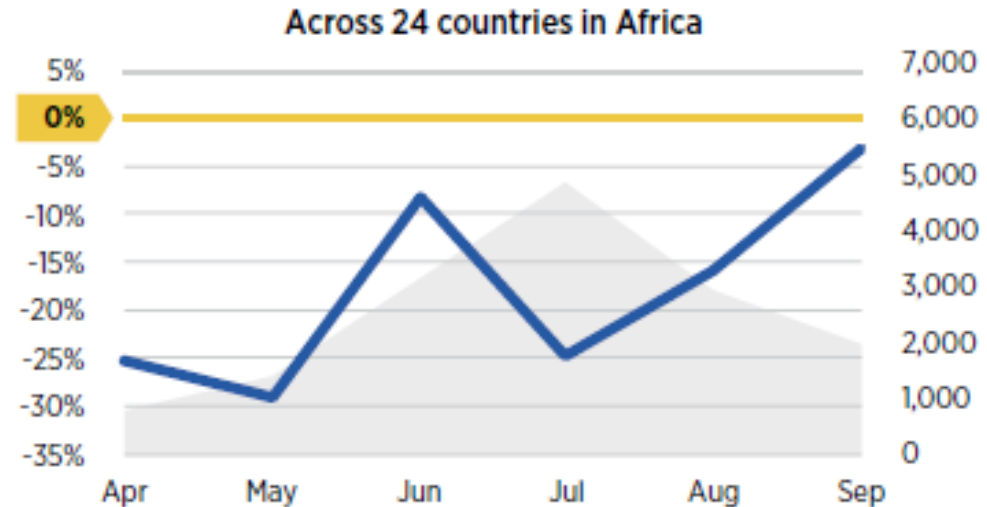
## HIV Testing









## Drug-sensitive TB Dx & Screening












## Screen/test for HIV in TB patients



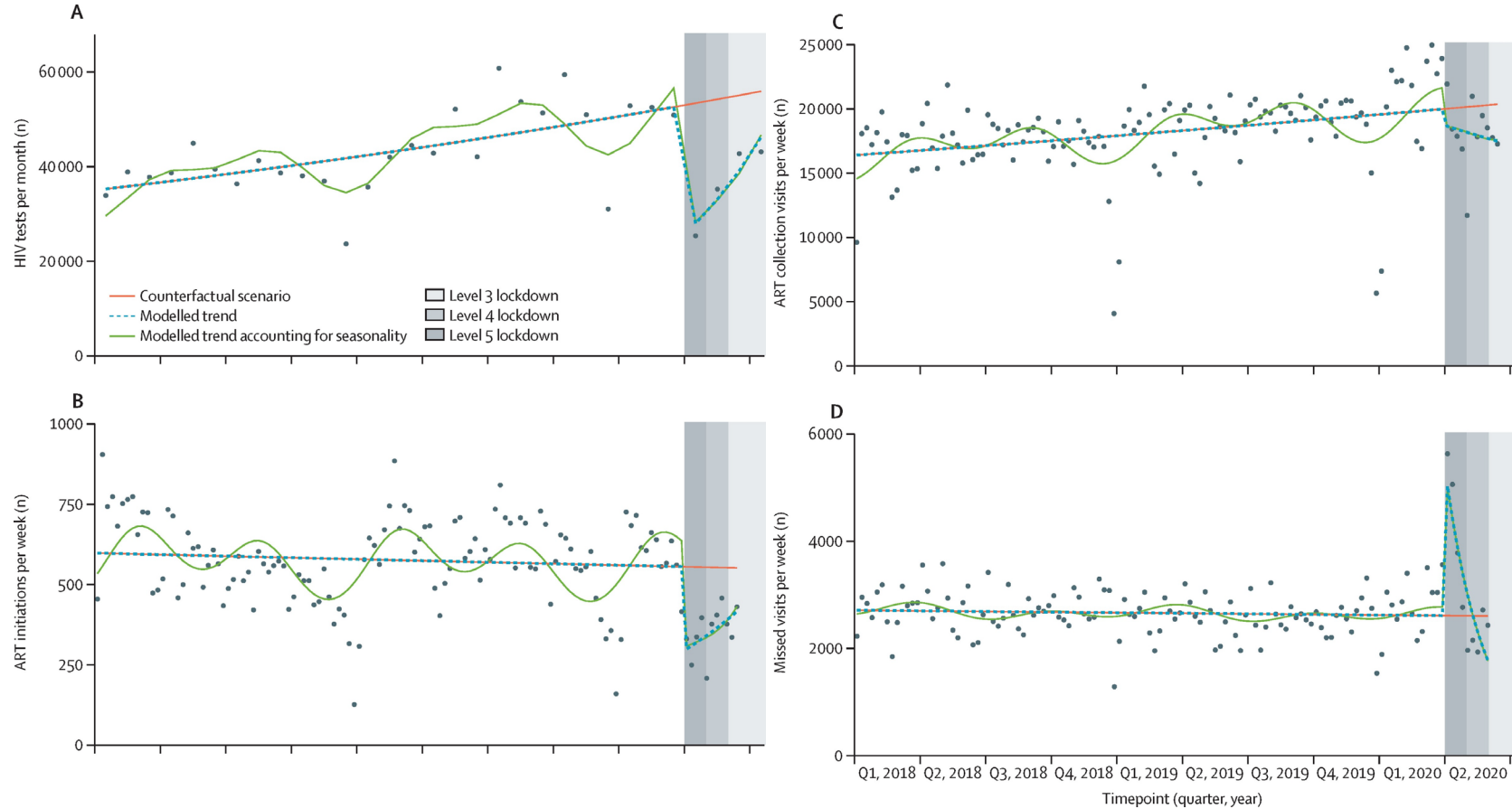
# Service Adaptations

	Changes in the management of health workers and community health workers	Frequency
	Staff were re-assigned to different units in the facility	70%
	Staff were temporarily transferred to a different facility	34%
	Over-time hours of full-time staff were increased	32%
	New staff were recruited to support the increased volume of patients	31%
	Volunteers were recruited to support the increased volume of patients	16%
	Part-time staff had their hours increased	14%

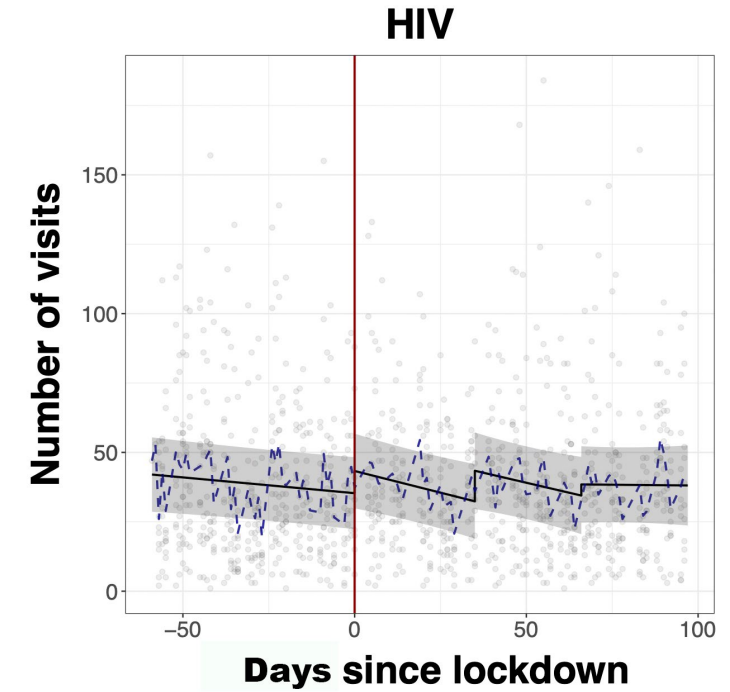
	Adaptive measure for delivery of health services	Frequency
	Facilities extended drug prescriptions to ensure patients had long-term and uninterrupted access to their medication	71%
	Facilities gave priority to the consultations of high-risk patients	64%
	Facilities provided all care for multiple morbidities in a single visit	39%
	Facilities re-directed patients to alternative facilities	32%
	Facilities provided home-based care for certain patients	29%
	Facilities changed their locations for outpatient service provision	29%
	Facilities provided medical consultations over the phone (telemedicine) and digital platforms	23%
	Facilities organized a window outside of the health facility for pick-up and drop-off of pharmacy services	22%
	Facilities digitalized patients' prescriptions for medication refills	15%



# South African Findings – HIV Services



Dorward, Jienchi, et al. "The impact of the COVID-19 lockdown on HIV care in 65 South African primary care clinics: an interrupted time series analysis." *The Lancet HIV* 8.3 (2021): e158-e165.



Siedner, Mark J., et al. "Access to primary healthcare during lockdown measures for COVID-19 in rural South Africa: an interrupted time series analysis." *BMJ open* 10.10 (2020): e043763.

# South African Findings – Tuberculosis

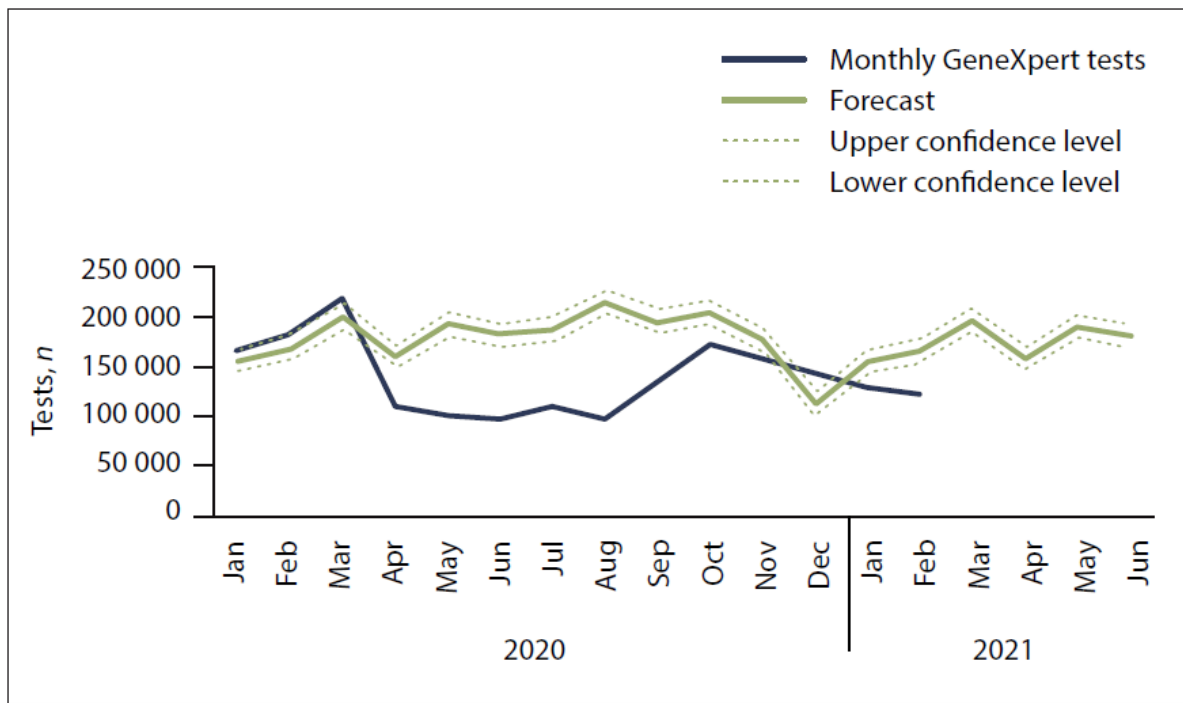
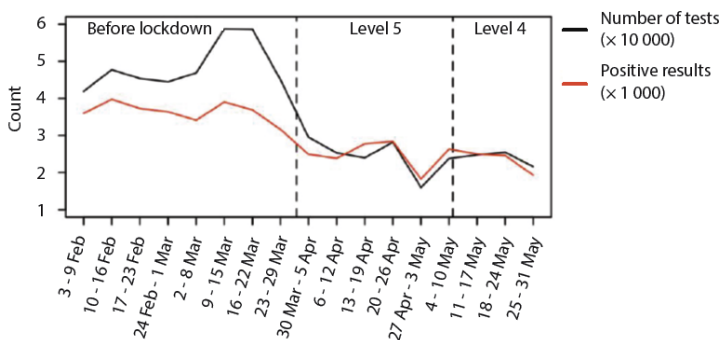
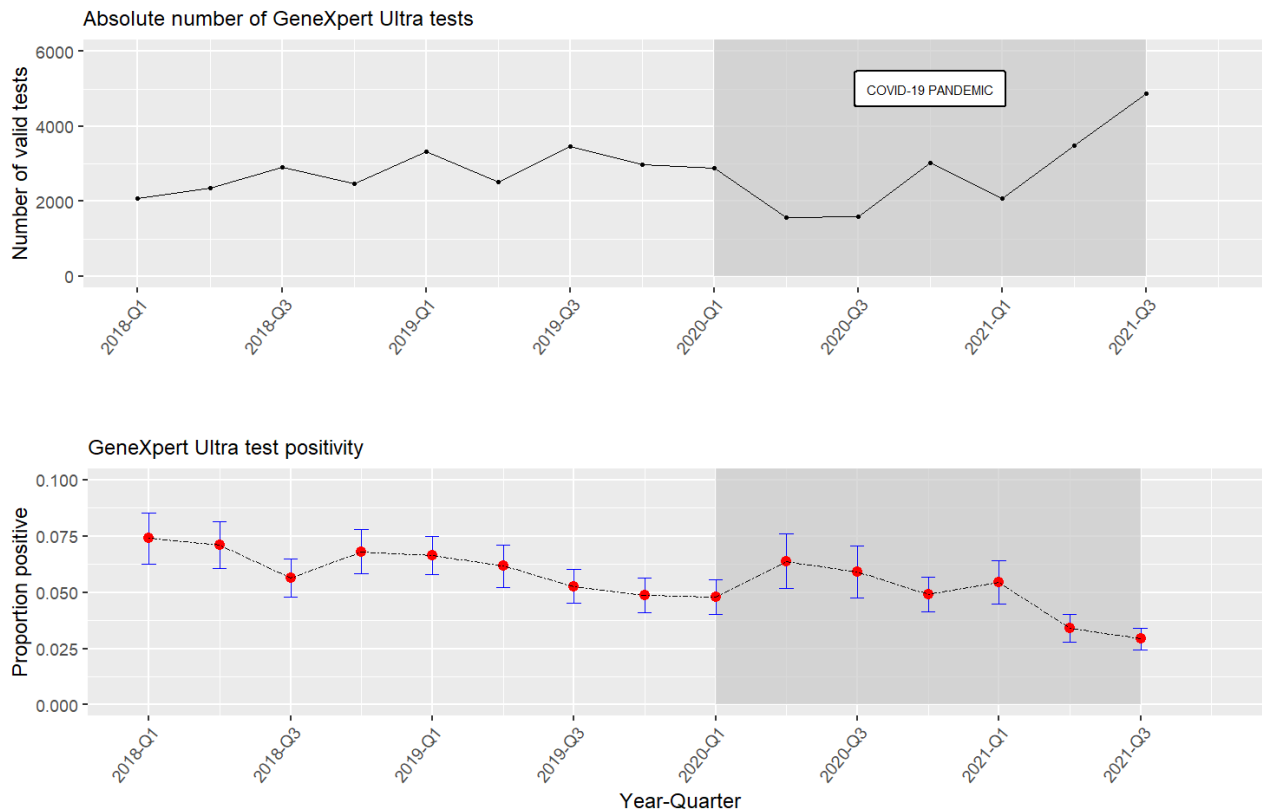


Fig. 11. Number of GeneXpert tests done for tuberculosis between January 2020 and February 2021 compared with the expected number (source: Moultrie et al.<sup>[10]</sup> National Health Laboratory Service).

Pillay, Y., et al. "Impact of COVID-19 on routine primary healthcare services in South Africa." *South African Medical Journal* 111.8 (2021): 714-719.

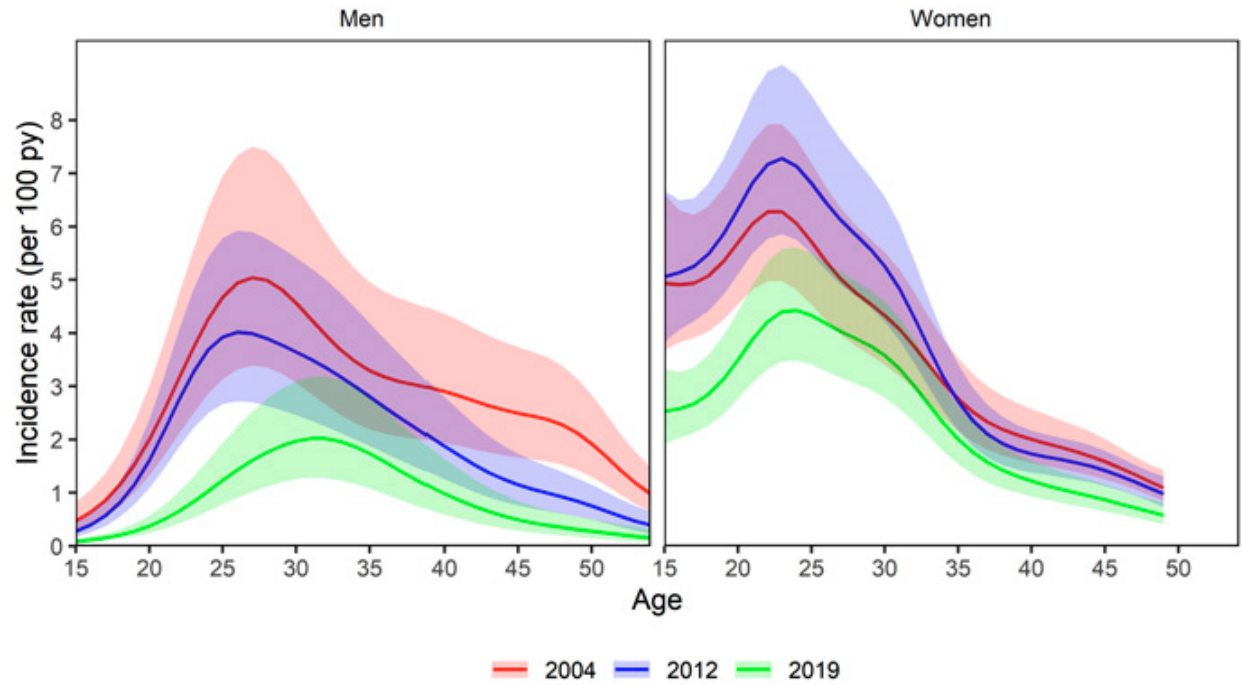


A Madhi, Shabir, et al. "COVID-19 lockdowns in low-and middle-income countries: success against COVID-19 at the price of greater costs." *SAMJ: South African Medical Journal* 110.8 (2020): 724-726.



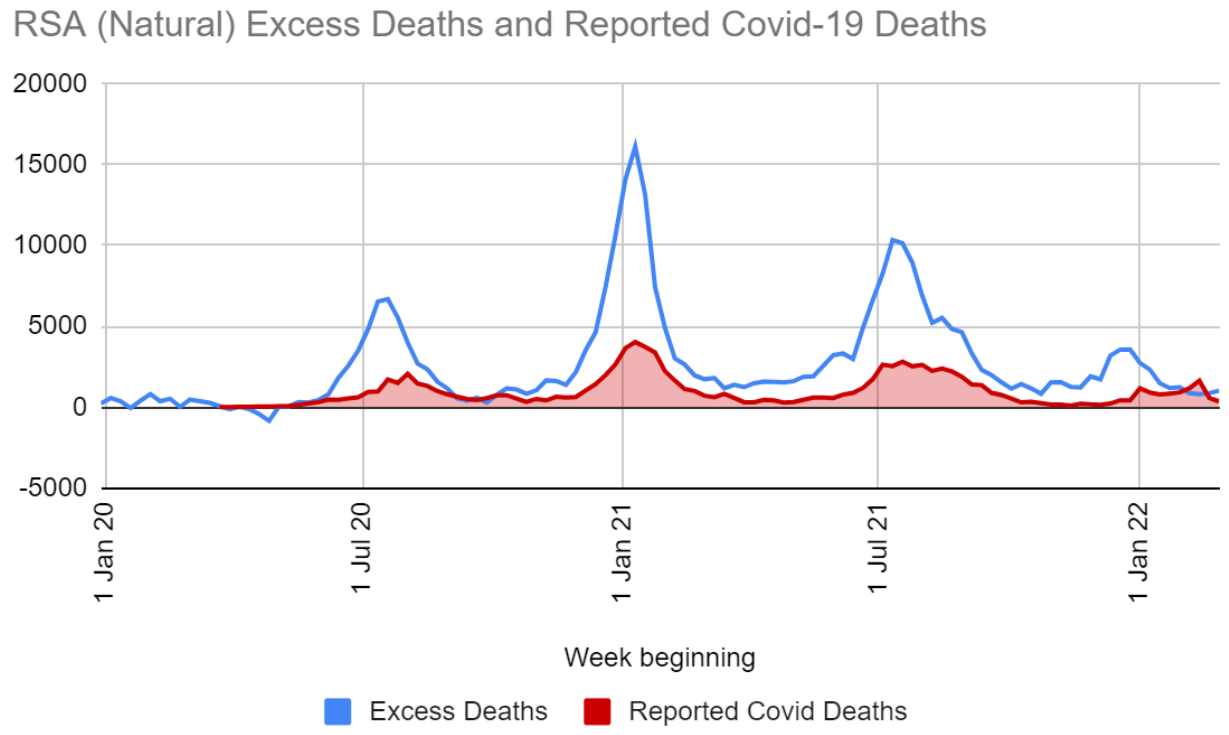
Kahn, P., Gareta D, et al. GeneXpert Ultra tests in uMkhanyakude, KZN. Unpublished

# Health Outcomes



**Fig. 2.** Year-specific cross-sections of incidence age distributions and 95% CIs from years 2004, 2012, and 2019. The largest difference in age distribution occurred in the latter half of the study period, between 2012 and 2019.

Akullian, Adam, et al. "Large age shifts in HIV-1 incidence patterns in KwaZulu-Natal, South Africa." *Proceedings of the National Academy of Sciences* 118.28 (2021).



Bradshaw, Debbie, et al. "Report on Weekly Deaths in South Africa: 27 Feb-5 Mar 2022 (Week 9)." South African Medical Research Council (2022).



# Conclusions

- Local health services fairly resilient to the impact of Covid-19
- Need for longer term assessment
- Integration of information systems