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NOTES FROM THE FIELD

# Causes of loss to follow-up from drug-resistant TB treatment in Khayelitsha, South Africa

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Patients initiated on drug-resistant TB(DR-TB) treatment in 2019 in Khayelitsha, South Africa, with a loss to follow-up outcome were evaluated to better understand reasons for loss to follow-up and to determine if any had returned to care. Of a total of 187 patients, 28 (15%) were lost to follow-up (LTFU), 24 (86%) of whom were traced: 20/24 (83%) were found when they re-presented to facilities and 8/28 (29%) were linked back to DR-TB care. People with DR-TB continue to seek care even after being LTFU; thus better coordination between different components of the healthcare system are required to re-engage with these patients. Interventions to mitigate the socio-economic challenges of people on DR-TB treatment are needed. Many people who were LTFU and symptomatic were willing to re-engage with DR-TB care, which highlights the importance of for compassionate interventions to welcome them back.

Of the half million people who fall ill with drug-resistant forms of TB (DR-TB) each year, about 150,000 are started on treatment: almost one in four started on treatment, however, are lost to follow-up (LTFU) and do not complete their prescribed treatment course.[1] This poor outcome persists in programmatic settings in spite of shorter regimens for complex reasons,[2] including comorbid mental health and substance use (SU), competing socio-economic needs and adverse events.[3]Loss to follow-up is difficult to study since these individuals are difficult to trace from a health systems point of view.[4]

This was a retrospective evaluation of patients initiated on DR-TB treatment between 1 January and 31 December 2019 in Khayelitsha, South Africa, who had an outcome of LTFU at the time of this review (December 2020). Khayelitsha is a peri-urban informal settlement located outside of Cape Town with a large burden of DR-TB (~180 cases annually). Reported LTFU rates for the DR-TB programme have been historically high, ranging from 15% to 30%;[5] despite the introduction of all-oral shorter regimens, this has not significantly changed.

To trace patients with an LTFU outcome, folder audits and evaluations of routine monitoring platforms were conducted. Data on demographics were obtained from clinical folders. DR-TB data were obtained from the electronic treatment register (EDR).Data on vital status, as well as any laboratory tests and medications, were obtained from the Western Cape electronic medical record, which links electronically with the vital register. For individuals found in an electronic system after being given an LTFU outcome, the location of the healthcare facility was noted to assess facility concordance with DR-TB treatment location and determine if the person was receiving any medical care in the same facility where s/he was treated for DR-TB. Information regarding screening for SU using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) tool was collected from the clinical record. Furthermore, patients with available telephone numbers and addresses in the clinical folders were contacted by phone and if possible, home/facility visits were arranged to conduct TB screening.

## ASPECT OF INTEREST

In all, 187 patients were initiated on DR-TB treatment in 2019, and 28 (15%) had a treatment outcome of LTFU (Table 1).

### *Tracing DR-TB patients with an LTFU outcome*

Of the 28 patients LTFU, 24 (86%) were traced using at least one method: 20/24 (83%) were found via electronic records because they were receiving healthcare for other reasons, and 11/24 (46%) were able to be contacted by phone or in person. Seven of these 24 individuals (29.2%) were found both electronically and by phone/in person. Five of these 24 individuals (18%) had died. Of the five who died; the median time from loss to follow-up to death was 6.5 months (interquartile range [IQR] 3.5–9.8), and four were receiving healthcare for other reasons following their LTFU outcome (two at primary care clinics and two at district hospitals).All deaths were confirmed in the vital register

### *Located using an electronic system*

For the 20/24 (83%) individuals traced using an electronic system, the median time between loss to follow-up and being found in any electronic system was 4.6 months (IQR 1.3–11.6); 6/20 (30%) patients were found as having received care in healthcare facilities within <2 months of their LTFU outcome. The healthcare services accessed included (not mutually exclusive): HIV care (7/20, 35%), blood draw (6/20, 30%), TB testing (5/20, 25%), medication collection (3/20, 15%), COVID-19 testing (1/20, 5%) and hospital admission (1/20, 5%). Overall, 10/20 (50%) patients were

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KEY WORDS
rifampicin-resistant tuberculosis; lost from care; socio-economic support; substance use

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**TABLE** Clinical and demographic characteristics of the DR-TB patients started on treatment in 2019 with an LTFU outcome

| | (*n*=28) *n* (%) |
|---|---|
| Male | 16 (57.1) |
| Age, years, median [IQR] | 33.5 [28.5–42] |
| Previous TB treatment | |
| None | 12 (42.9) |
| First-line TB treatment | 9 (32.1) |
| Second-line TB treatment | 7 (25.0) |
| Pulmonary DR-TB | 28 (100.0) |
| DR-TB resistance classification | |
| Xpert rifampicin-resistant without culture confirmation | 5 (17.9) |
| Rifampicin monoresistance | 5 (17.9) |
| Multidrug-resistant TB | 16 (57.1) |
| Fluoroquinolone resistance | 2 (7.1) |
| HIV status | |
| Negative | 10 (35.7) |
| Positive and on ART | 18 (64.3) |
| CD4 count at baseline, cells/mm$^3$, median [IQR] (*n*= 15) | 94 [11–167] |
| Diabetic | 1 (3.6) |
| Screened for substance use using ASSIST | 14 (50.0) |
| Number of substances of use | |
| 1 | 3 (21.4) |
| 2 | 8 (57.1) |
| 3 | 3 (21.4) |
| Substance use screening classification | |
| Low risk | 2 (14.3) |
| Moderate risk | 7 (50.0) |
| High risk | 5 (35.7) |
| Substances of use (not mutually exclusive) | |
| Alcohol | 14 (100.0) |
| Tobacco | 11 (78.6) |
| Cannabis | 2 (14.3) |
| Crystal methamphetamine | 1 (7.1) |
| DR-TB regimen started* | |
| Short (9–12 months of a standardised and consisting of levofloxacin, clofazimine, pyrazinamide, ethambutol, high-dose isoniazid, linezolid and bedaquiline) | 17 (60.7) |
| Long (18–24 months of an individualised regimen containing four or more second-line drugs) | 11 (39.3) |

* Regimens were provided in line with the regimens recommended as per the South African DR-TB Treatment Guidelines.
DR-TB = drug-resistant TB; LTFU = lost to follow-up; IQR = interquartile range; ART = antiretroviral therapy; ASSIST = Alcohol, Smoking and Substance Involvement Screening Test.

identified in the same facility where they were registered for their DR-TB treatment; among the other 10, respectively 7 (35%), 2 (10%), and 1 (5%) patient/s were located in healthcare facilities in the Cape Metro, the Eastern Cape and outside of the Cape Metro (but still in the Western Cape) areas.

### *Located by phone and/or in person*

Of the 24 patients traced, 11 (46%) were found by phone or in person via a home visit. Of these 11 patients, 7 (63.6%) were also located via an electronic system as described above. Among these 11 patients, the self-reported reasons for being LTFU were multi-

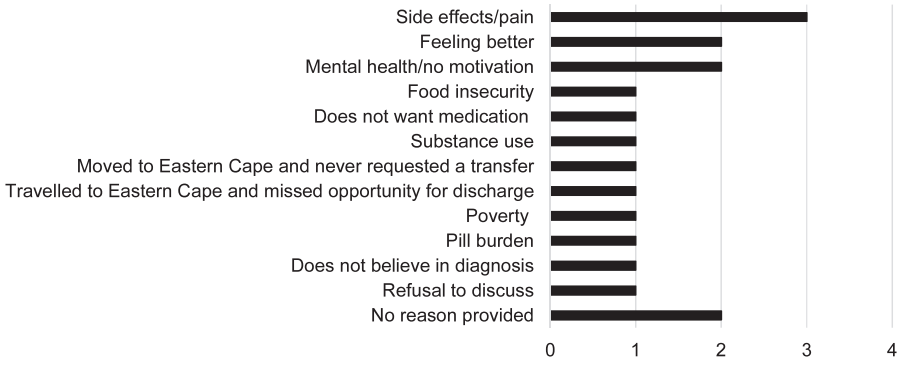


**FIGURE** Patient-reported reasons for being lost to follow-up among the 11 (46%) out of 24 DR-TB patients traced by phone or in person via a home visit (not mutually exclusive).

factorial (Figure). Four (36%) of the 11 patients reported more than one reason.

TB screenings were planned for these 11 patients. One patient, located telephonically, was found to be on appropriate DR-TB treatment in the Eastern Cape (verified after self-report). This left 10 individuals who were offered TB screening. Two of the 10 (20%) refused screening, and thus eight were screened (80%). Two of the eight (25%) had no signs/symptoms of TB; however, one individual was interested in returning to care and provided with a referral letter. The remaining six (75%) reported TB signs/symptoms. Of the six symptomatic individuals, four (66.7%) wanted to return to care and were supported in re-engaging with the TB services.

### *Linkage to care*

Eight of the 28 patients (29%) with an LTFU outcome were linked back to DR-TB treatment (2 who were traced only electronically, in addition to the 6 who were traced in-person/by phone, as described above). All eight were started on a new DR-TB treatment regimen.

## DISCUSSION

We used multiple means to locate people given an LTFU outcome, and our results indicate that these individuals were not "lost". They continue to interact with health services—often within the same facility where they received their DR-TB care. Despite this, only 29% were linked back to care. Potential opportunities for such re-engagement require better coordination between fragmented health services. Equipping the electronic data and results systems with "flags" to indicate loss to follow-up from DR-TB care could alert health workers.

Reasons given by people for being LTFU include socio-economic complications (poverty, food insecurity), mental health issues,[6,7] pill burden, and side effects. Moderate-to-high risk SU may also be associated with LFTU[8]—although our study cannot draw firm conclusions about this—and interventions are needed to treat this common co-morbid SU.[9]

Our small study had limitations: 1) we were unable to find all of the persons given an LTFU outcome; 2) there may have been recall bias or social acceptability bias; and 3) we were unable to assess in detail the reasons patients were seeking care in our records search.

## CONCLUSION

Our results show that people living with DR-TB continue to seek care even after being LTFU. Better coordination between different components of the healthcare system could lead to their re-engagement with DR-TB treatment. Interventions to mitigate the socio-economic challenges of people on DR-TB treatment are needed. Providing comprehensive and robust social support to patients[10] is likely as important as the provision of safer, better tolerated and shorter regimens that must be developed for DR-TB.

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Les patients placés sous traitement pour TB pharmacorésistante (DR-TB) en 2019 à Khayelitsha, Afrique du Sud, et ayant été perdus de vue ont été évalués afin de mieux comprendre les raisons de la perte de vue et de déterminer si certains étaient de nouveau suivis. Sur 187 patients, 28 (15%) ont été perdus de vue, dont 24 (86%) ont été retrouvés : 20/24 (83%) ont été retrouvés lorsqu'ils se sont de nouveau présentés en consultation et 8/28 (29%) ont été réinsérés dans le parcours de soins de la DR-TB. Les patients atteints de DR-TB sont toujours en demande de soins, même après avoir été perdus de vue. Ainsi, une meilleure coordination entre les différentes composantes du système de santé est nécessaire afin de rétablir le lien avec ces patients. Des interventions visant à atténuer les problèmes socio-économiques des patients sous traitement pour DR-TB sont nécessaires. De nombreux patients symptomatiques ayant été perdus de vue étaient enclins à reprendre leur traitement de la DR-TB. Il est donc important de mettre en place des programmes compassionnels afin de les réinsérer dans le parcours de soins.



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