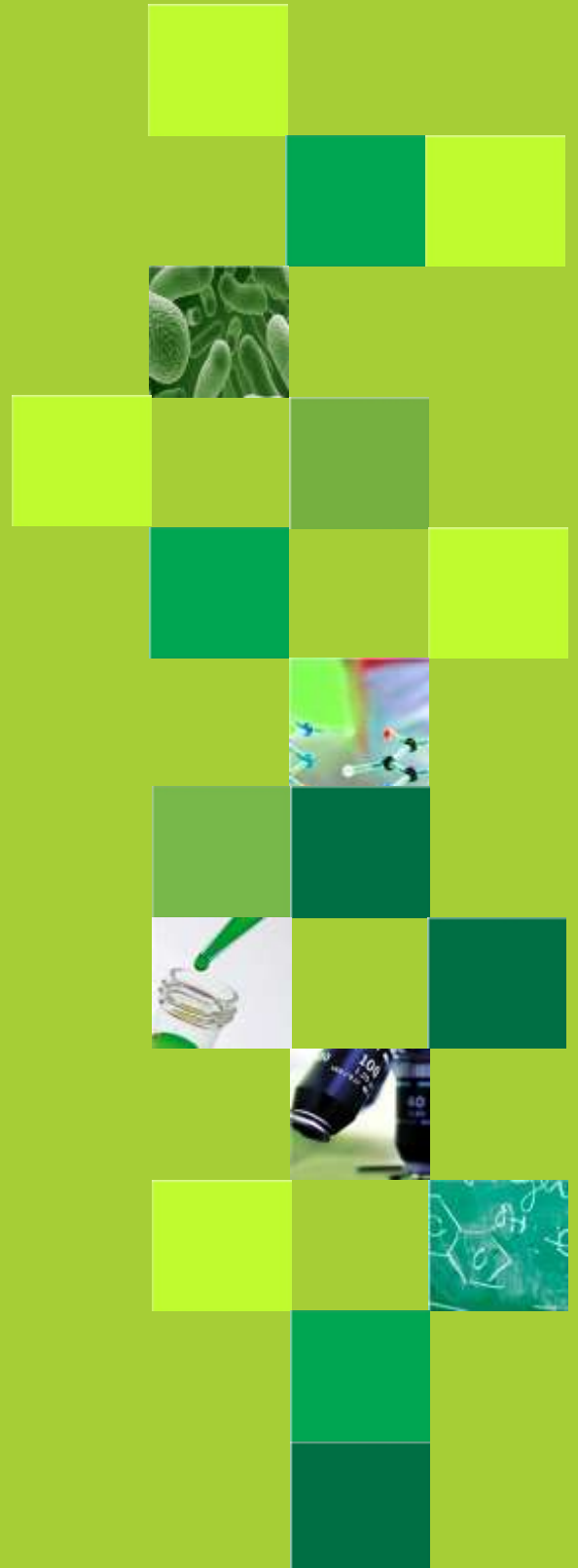




NATIONAL HEALTH
LABORATORY SERVICE

National Priority Programmes

GeneXpert Xpert MTB/RIF
National report
November 2017





National Xpert MTB/RIF Programme

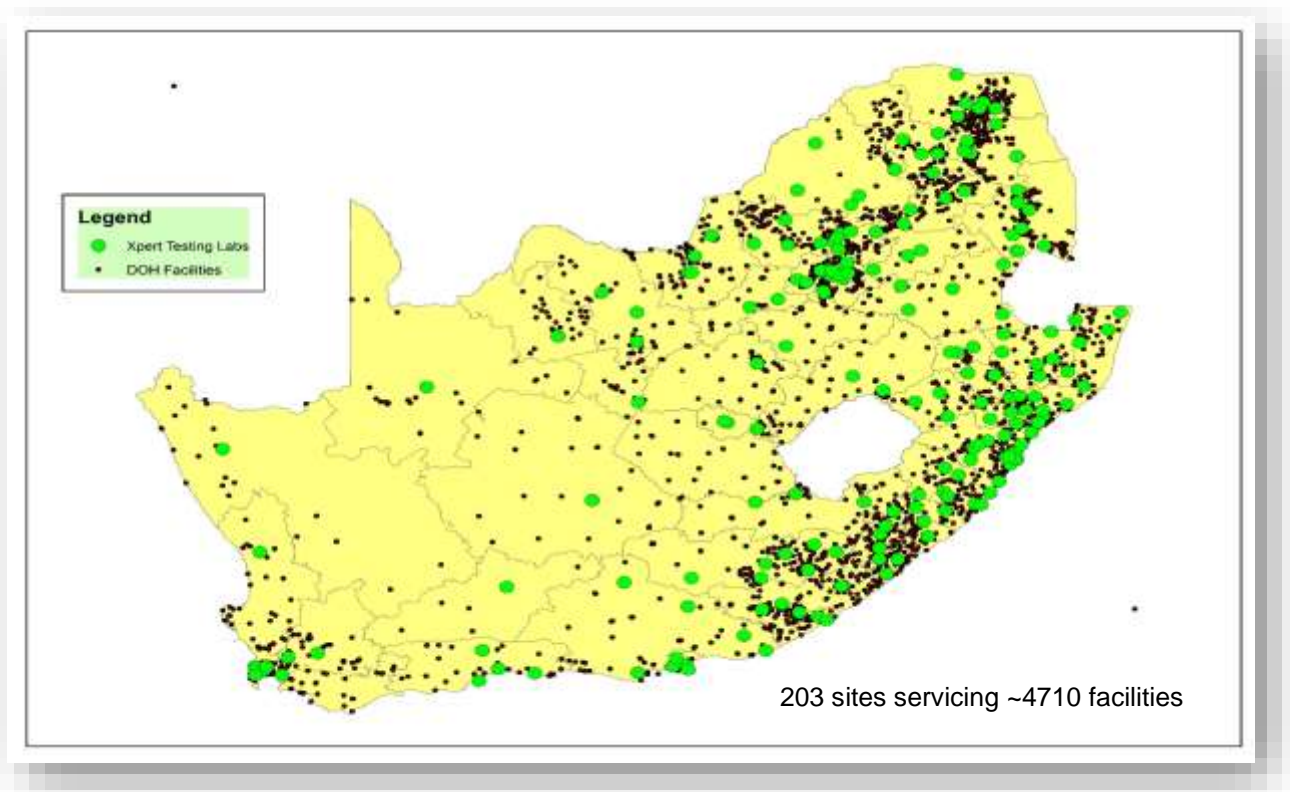
1. Background to Project

This project was initiated at the request of the Honorable Minister of Health, Dr Aaron Motsoaledi, in early 2011, following the World Health Organization's strong recommendation published in December 2010 which stated that "the new automated DNA test for TB be used as the initial diagnostic test in individuals suspected of MDR-TB or HIV/TB" to improve TB healthcare services due to its increased sensitivity for TB detection and reduced testing time.

In 2014, the programme was further expanded to directly support the screening for TB and HIV in high risk populations in correctional centres and in peri-mining communities. Seven on-site laboratories at Correctional Services and six mobile laboratories were established.

GeneXpert Placements

Figure 1: Current GeneXpert Placements (203 testing centers, 325 analysers, GX4: 127; GX16-8: 1; GX16: 189; GX48:1; GX80: 8)





2. Assays performed to date

In summary, a total of 12,108,317 specimens have been processed to date (30 November 2017). In November 2017 a total 184,991 specimens were processed. The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 10.40% (19 237).

Table 1: National GeneXpert MTB Results (Cumulative)

Year	MTB Detected	MTB Indeterminate	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
2011	30,079		158,220	2,756	191,055	15.74
2012	90,700		538,865	10,853	640,418	14.16
2013	208,923		1,533,342	50,356	1,792,621	11.65
2014	249,987		2,075,895	61,909	2,387,791	10.47
2015	245,517		2,341,813	56,306	2,643,636	9.29
2016	223,309		2,142,180	48,540	2,414,029	9.25
2017	190,112	669	1,817,032	30,954	2,038,767	9.32
Total	1,238,627	669	10,607,347	261,674	12,108,317	10.23

Table 2: National GeneXpert RIF Results (Cumulative)

Year	RIF Unsuccessful	Resistant	Sensitive	No RIF Result	Total	% RIF Resistant
2011	284	2,138	27,535	122	30,079	7.11
2012	1,262	6,560	82,164	714	90,700	7.23
2013	5,335	13,810	188,574	1,204	208,923	6.61
2014	6,081	16,329	227,078	499	249,987	6.53
2015	3,289	14,997	226,938	293	245,517	6.11
2016	2,391	13,808	206,949	161	223,309	6.18
2017	1,844	10,936	177,249	83	190,112	5.75
Total	20,486	78,578	1,136,487	3,076	1,238,627	6.34

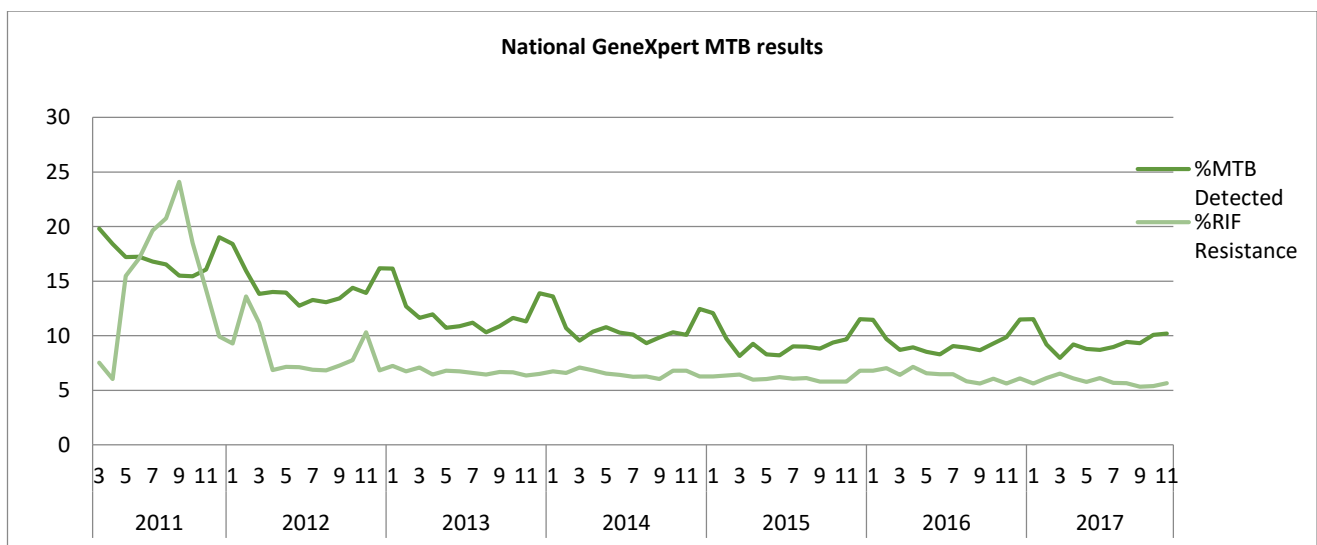


Figure 2: MTB Positivity and RIF Resistant rates overtime



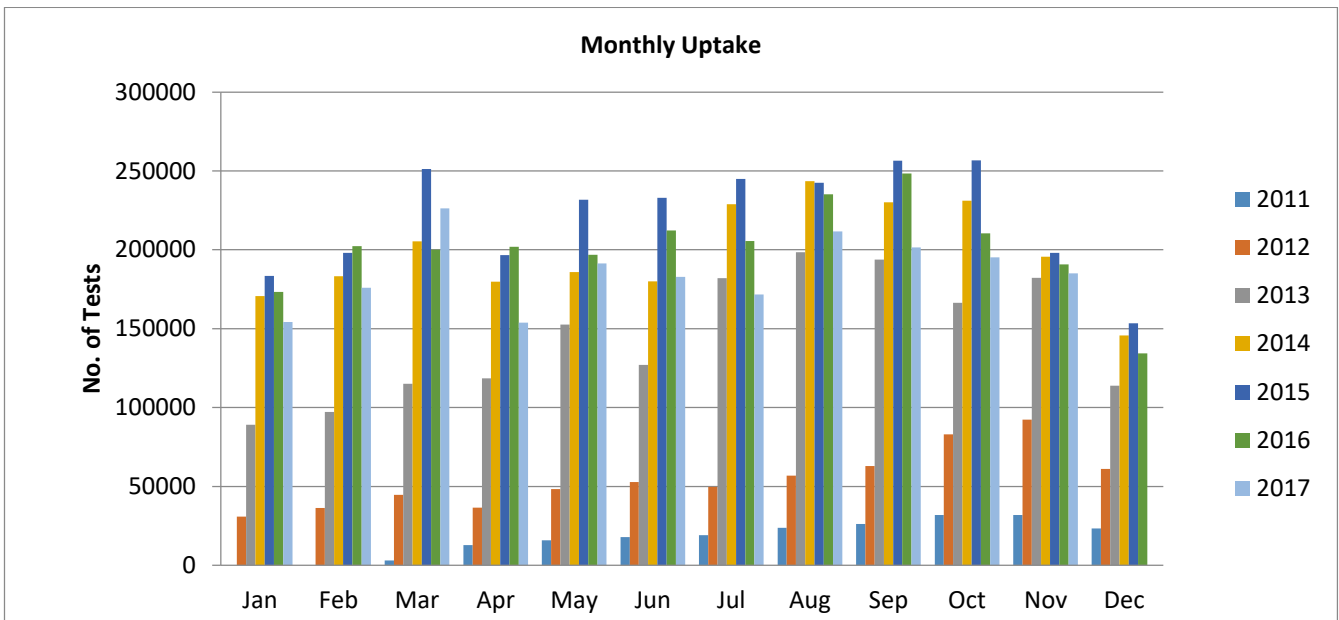


Figure 3: GeneXpert Monthly Uptake

3. Correctional Services

In order to improve TB control in all 242 correctional facilities in South Africa, the NHLS is working in partnership with the Department of Correctional Services (DCS), NDoH, Aurum Institute, TB/HIV Care Association and Right to Care to ensure access to regular HIV- and TB-related screening, testing and treatment of up to 150,000 offenders through the Global Fund programme. Xpert MTB/Rif testing is being provided at either one of the 7 on-site labs, or at the nearest NHLS referral laboratory.

Total of 330,357 specimens have been processed to date (30 November 2017). The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 4.62% (15,248).

Table 3: Correctional Service GeneXpert MTB Results (Cumulative)

Year	MTB Detected	Indeterminate	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
Oct- Dec 2013	662		7236	142	8040	8.23
Jan- Dec 2014	3620		55995	1004	60619	5.97
Jan- Dec 2015	4831		124589	2216	131636	3.67
Jan -Dec 2016	3333		68003	1308	72644	4.59
Jan -Nov 2017	2802	7	53905	704	57418	4.88
Total	15248	7	309728	5374	330357	4.62

Table 4: Correctional Service GeneXpert RIF Results (Cumulative)

Year	RIF Unsuccessful	Resistant	Sensitive	No RIF Result	Total	% RIF Resistant
Oct- Dec 2013	7	27	626	2	662	4.08



Jan - Dec 2014	107	188	3323	2	3620	5.19
Jan - Dec 2015	99	190	4530	12	4831	3.93
Jan -Dec 2016	35	149	3146	3	3333	4.47
Jan -Nov 2017	31	114	2650	7	2802	4.07
Total	279	668	14275	26	15248	4.38

4. Peri-Mining Communities

NHLS, together with the Aurum Institute, has been appointed by NDoH (under the Global Fund grant) to provide services to implement interventions aimed at improving TB and HIV/AIDS management for vulnerable peri-mining communities (estimated at around 600,000 people) in 6 main mining districts. Six staffed and GeneXpert-equipped mobile TB units undertake Xpert MTB/RIF testing for TB in these communities.

A total of 94,235 specimens have been processed to date (30 November 2017). The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 1.20% (1,133).

Table 5: Peri-mining GeneXpert MTB Results (Cumulative)

Year	MTB Detected	MTB Indeterminate	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
Jun-Dec 2014	55		2410	66	2531	2.17
Jan-Dec 2015	406		37021	609	38036	1.07
Jan-Dec 2016	257		24289	510	25056	1.03
Jan-Nov 2017	415	8	27612	577	28612	1.45
Total	1133	8	91332	1762	94235	1.20

Table 6: Peri-mining GeneXpert RIF Results (Cumulative)

Year	RIF Unsuccessful	Resistant	Sensitive	No RIF	Total	% Resistant
Jun-Dec 2014	3	2	51	0	56	3.57
Jan-Dec 2015	10	27	364	4	405	6.67
Jan-Dec 2016	9	15	225	8	257	5.84
Jan-Nov 2017	6	14	386	9	415	3.3
Total	28	58	1026	21	1133	5.12

5. Training: Laboratory and Clinical

A total of 2,916 laboratory staff and 14,414 health care workers have been trained since December 2011. This will be an ongoing process to support NDoH training on clinical algorithm. Laboratory staff received both clinical and technical training.

Table 9a: Laboratory staff trained in the month of November 2017

Province	No of Participants
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Eastern Cape	48
Kwazulu Natal	88

Table 9b: Laboratory staff trained on Advanced GeneXpert Operations for the month of November 2017

Date	Province	No of Participants
28 November to 01 December 2017	Northern and Western Cape	18

Table 10: Health Care workers trained in the month of November 2017

Date	Province	District	Facility	No of Participants
01/11/2017	Gauteng	Tshwane	Nelmapius PHC	5
02/11/2017	Gauteng	West rand	Aurum Office	10
07/11/2017	Kwazulu Natal	Umgungundlovu	Nkonjeni	25
08/11/2017	Kwazulu Natal	Umgungundlovu	Vryheid	24
09/11/2017	Kwazulu Natal	Umgungundlovu	Benedictine	30
10/11.2017	Kwazulu Natal	Umgungundlovu	Ceza	16
23/11/2017	North West	Taung	Taung Hospital	17
24/11/2017	North West	NMM	Mafikeng	25
27/11/2017	Gauteng	West rand	Carltonville	22
29/11/2017	North West	Bojanala	District office	9
30/11/2017	North West	Dr K K Kaunda	Klerksdorp	24

6. Rejected Specimens

Rejections of GeneXpert specimens mostly occur as a result of Clerical errors (incorrect labelling and or incomplete request forms), cancellations (clinical errors), unsuitable specimens and insufficient volumes. In November 2017, 7 710 (4.05%) specimens were rejected. On-going training remains a practical tool to guarantee improvement in specimen collection and labelling.

Figure 4: Rejections rate (January to November 2017)

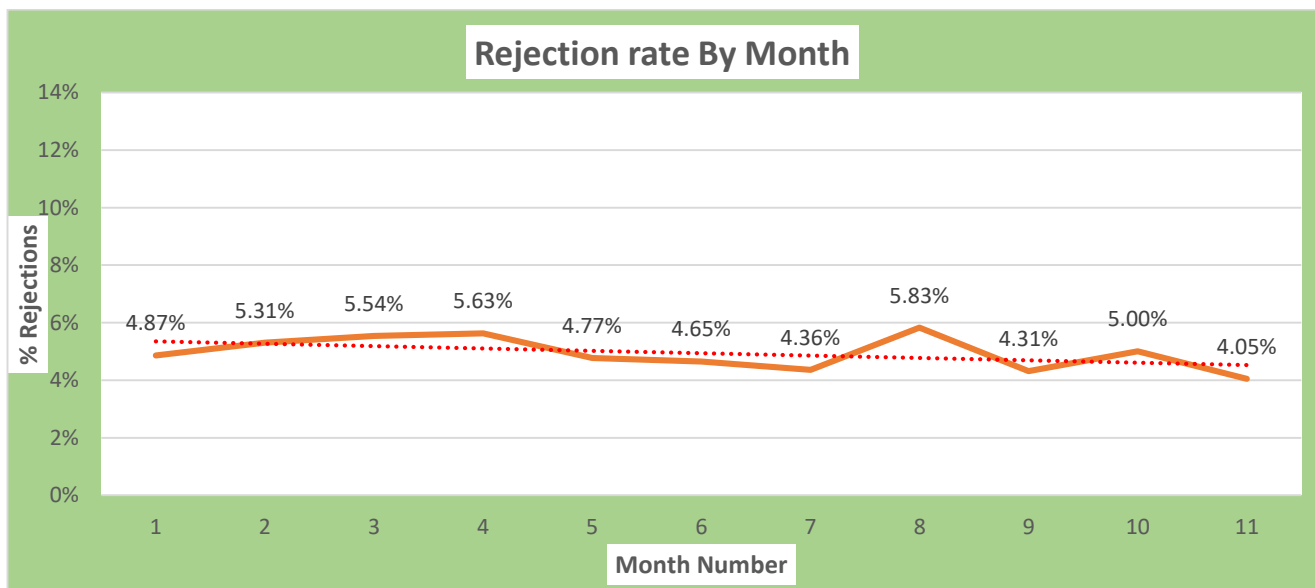
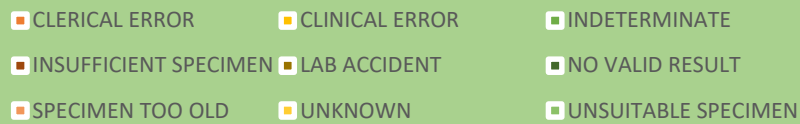
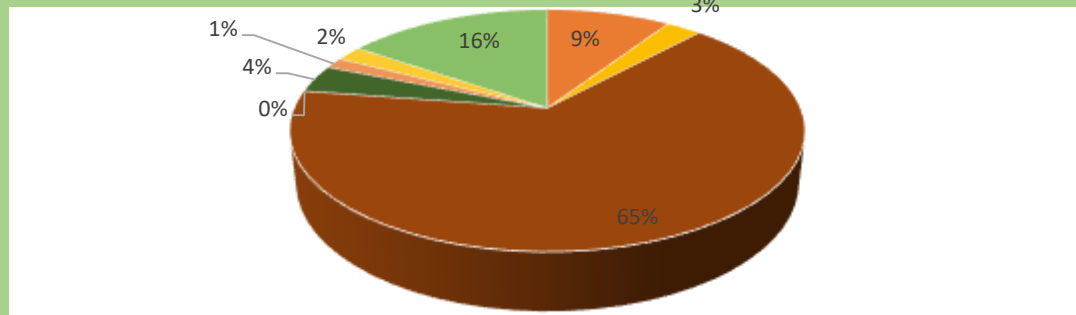


Figure 5: Rejections by reason





Rejects Reason



7. Challenges identified during the month of November 2017

- Sputum rejections due to provision of insufficient specimens, poor-quality sputum (mainly salivary), and contaminated specimens.

8. Upcoming plans

- Roll out Roll out of Xpert MTB/RIF Ultra assay.
- Continuous monitoring of sites through remote connectivity to improve program performance.
- Development of the GeneXpert dashboard to improve program performance.

9. Publications

- None

