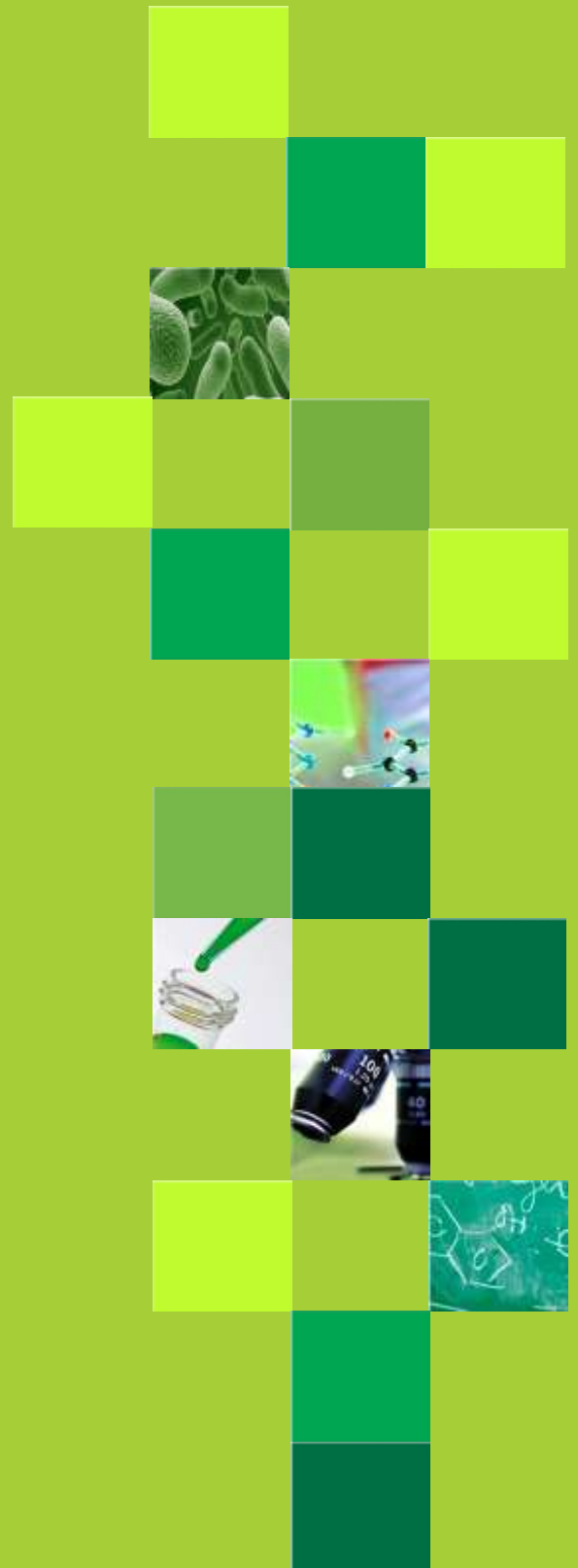




NATIONAL HEALTH
LABORATORY SERVICE

National Priority Programmes

GeneXpert Xpert MTB/RIF
National report
April 2018





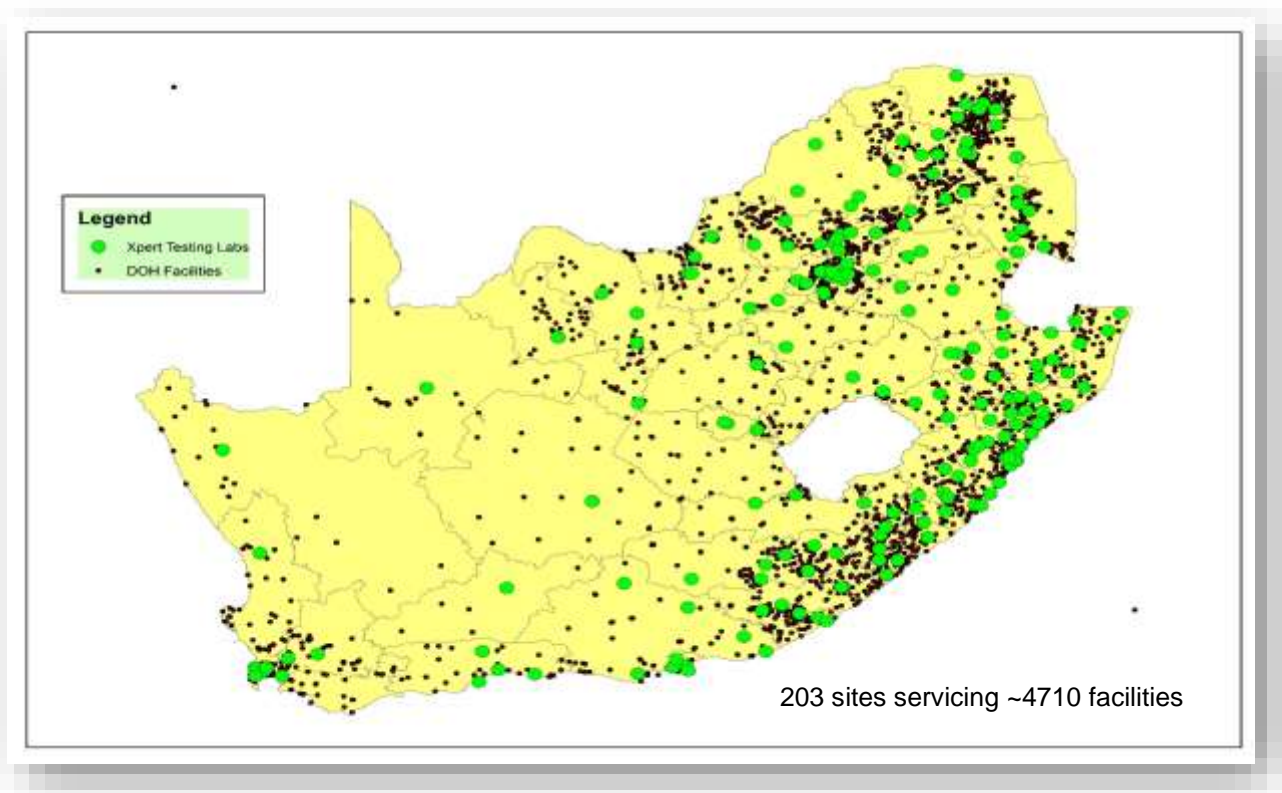
1. Background to Project

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 12,933,389 specimens have been processed to date (30 April 2018). In April 2018 a total 163,014 specimens were processed. The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 9.72% (15 851).





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	207,673	1,634	1,940,483	33,227	2,183,017	9.51
2018	68,811	9,742	591,427	10,842	680,822	10.11
Total	1,324,999	11,376	11,322,225	274,789	12,933,389	10.24

Table 2: National GeneXpert RIF Results (Cumulative)

Year	RIF Unsuccessful	Resistant	Sensitive	No RIF Results	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	2,267	12,121	193,197	88	207,673	5.84
2018	1,246	3,718	63,794	53	68,811	5.40
Total	22,155	83,481	1,216,229	3,134	1,324,999	6.30

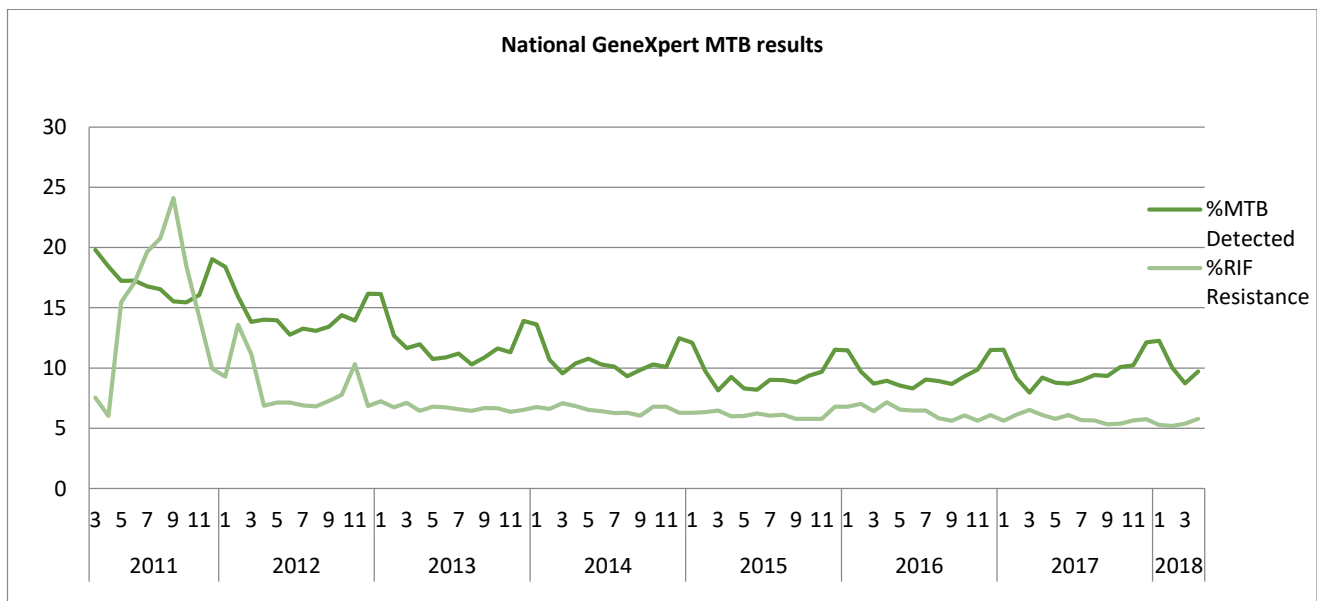


Figure 2: MTB Positivity and RIF Resistant rates overtime



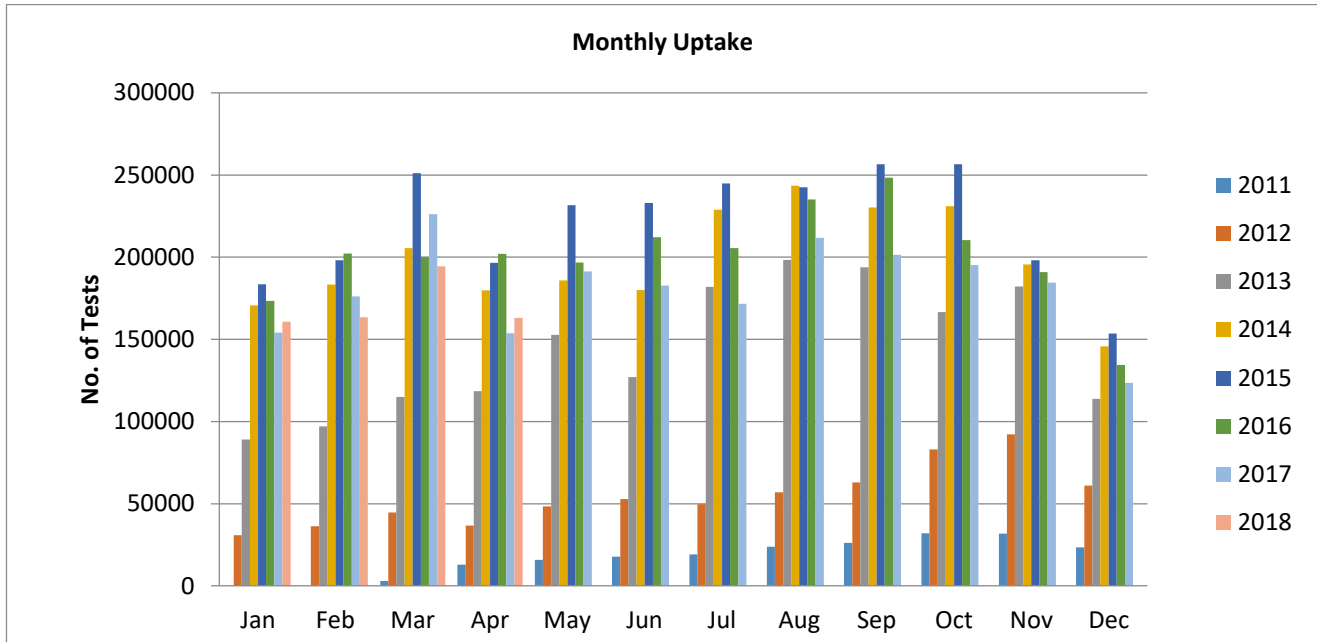


Figure 3: GeneXpert Monthly Uptake

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 351,951 specimens have been processed to date (30 April 2018). The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 4.67% (16,427).

Table 3: Correctional Service GeneXpert MTB Results (Cumulative)

Year	MTB Detected	Indeterminate	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
Oct- Dec 2013	662		7,236	142	8,040	8.23
Jan- Dec 2014	3,620		55,995	1,004	60,619	5.97
Jan- Dec 2015	4,831		124,589	2,216	131,636	3.67
Jan -Dec 2016	3,333		68,003	1,308	72,644	4.59
Jan -Dec 2017	3,042	20	57,514	755	61,331	4.96
Jan -Apr 2018	939	304	16,232	206	17,681	5.31
Total	16,427	324	329,569	5,631	351,951	4.67



**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	3,323	2	3,620	5.19
Jan - Dec 2015	99	190	4,530	12	4,831	3.93
Jan -Dec 2016	35	149	3,146	3	3,333	4.47
Jan -Dec 2017	34	124	2,877	7	3,042	4.08
Jan -Apr 2018	12	31	896		939	3.30
Total	294	709	15,398	26	16,427	4.32

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 102,844 specimens have been processed to date (30 April 2018). The total % of Mycobacterium tuberculosis complex (MTBC) detected in this cohort was 1.28% (1,315).

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

Year	MTB Detected	Indeterminate	MTB Not Detected	Test Unsuccessful	Total	% MTB Detected
Jun-Dec 2014	55		2,410	66	2,531	2.17
Jan-Dec 2015	406		37,021	609	38,036	1.07
Jan-Dec 2016	257		24,289	510	25,056	1.03
Jan-Dec 2017	418	21	28,472	600	29,511	1.42
Jan-Apr 2018	179	69	7,285	177	7,710	2.32
Total	1,315	90	99,477	1,962	102,844	1.28

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

Year	RIF Unsuccessful	Resistant	Sensitive	No RIF Results	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-Dec 2017	6	14	397	1	418	3.35
Jan-Apr 2018	4	8	167	0	179	4.47
Total	32	66	1,204	13	1,315	5.02





5. Training: Laboratory and Clinical

A total of 3,115 laboratory staff and 15,143 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 9: Laboratory staff trained in the month of April 2018

Month	Province	Number of Participants
April	Cradock	1
	Total	1

Table 10: Health Care Workers trained in the month of April 2018

Date	Province	District	Sub-district	Number of Participants
04-Apr-18	Eastern Cape	Nelson Mandela	Sub-district A, B, C	22
05-Apr-18	Eastern Cape	Nelson Mandela	Sub-district B	10
10-Apr-18	Gauteng	West Rand	Mogale	10
11-Apr-18	Gauteng	Tshwane	Sub-district 3	10
13-Apr-18	Gauteng	Tshwane	Sub-district 5, 7	29
16-Apr-18	Mpumalanga	Enhlanzeni	Thabatshweu	27
17-Apr-18	Mpumalanga	Nkangala	Steve Tshwete, Emakhazeni	25
18-Apr-18	Mpumalanga	Nkangala	Emalahleni	19
20-Apr-18	Mpumalanga	Nkangala	Thembisile Hani	19
23-Apr-18	Mpumalanga	Gert Sibande	Msukalingwa	12
24-Apr-18	Free State	Mangaung, Xhariep, Fezile Dabi, Lejweleputswa, Thabo Mofutsanyane	Bloemfontein, Mathabeng, Nala & Mafube	46
	Total			229

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 April 2018, 8 673 (5.32%) specimens were rejected. On-going training remains a practical tool to guarantee improvement in specimen collection and labelling.



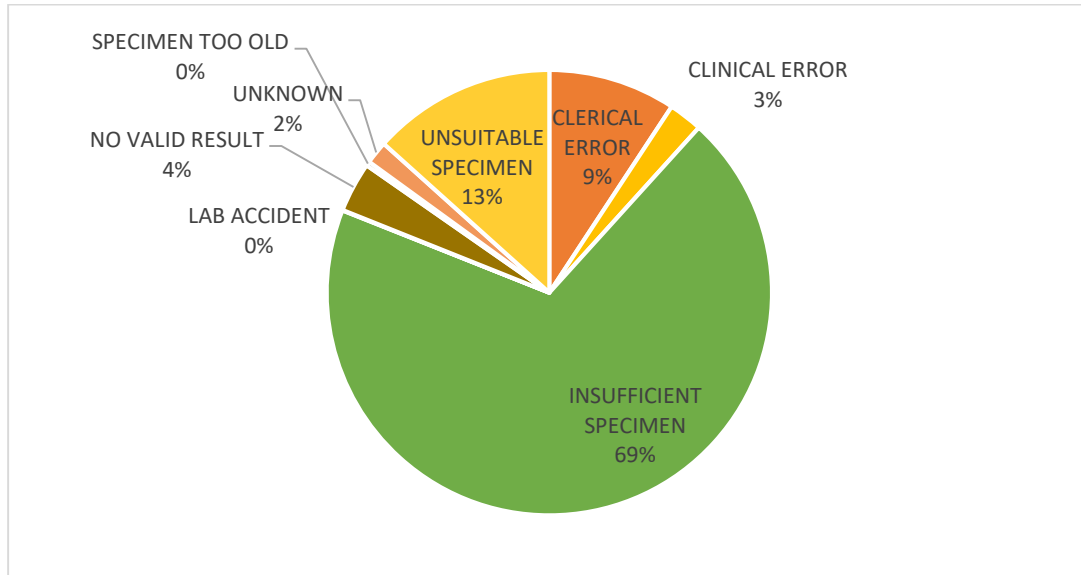


Figure 4: Rejections by reason for April 2018

7. Challenges identified during the month of April 2018

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

8. Upcoming plans

- Continuous monitoring of sites through remote connectivity to improve program performance.
- Development of the GeneXpert dashboard to improve program performance.

9. Publications

- None